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ABSTRACT

The study looked at the adult attainments of 91 children with learning disabilities who received remedial education in a private school for an average of 3 years between the ages 6 and 13. Methodology included questionnaires, interviews, and psychological testing. Approximately 60% were employed, 16% were in college. Major occupations were clerical (33%), unskilled (23%), professional (13%). Fifteen percent were married. Approximately 55% were independent of parental supervision. A very low incidence (6%) of delinquency and adult offenses was found. (Sixty-nine percent graduated high school; 15% completed public school educable mentally handicapped programs. Thirty-six percent completed college; 8% completed or are pursuing graduate study. Adult testing showed an increase of IQ scores relative to the Ss' population mean. Wechsler Adult Intelligence Scale mean IQs were all in the average range. Mean reading, spelling, and arithmetic scores ranked in that order. Reading and spelling scores were related to discrepancies between Verbal and Performance IQ. Personality test findings suggested vulnerability to stress. (Auhtor/SBH)

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Final Report

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A FOLLOW-UP STUDY OF LEARNING DISABLED CHILDREN AS ADULTS

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ABSTRACT

This is a study of the adult attainments of children with learning disabilities due to cerebral dysfunction, who received remedial education in a private school for an average of three years between the ages six and thirteen. The sample consists of 91 adults, 21-39, predominantly males, white middle and upper middle class backgrounds. Subjects had a minimum IQ of 80 on one test given in childhood (Stanford-Binet or one scale of WISC). Mean WISC Verbal IQ was average; Performance and Full Scale Means were dull-normal.

Methodology used was questionnaire, interview and psychological testing. Seventy-five Subjects were interviewed and 72 tested. Approximately 60% were employed, 16% were in college. Major occupations were clerical (33%), unskilled (23%), professional (13%). Fifteen percent (15%) were married. Approximately 55% were independent of parental supervision. A very low incidence of delinquency and adult offenses was found (6%).

Sixty-nine percent graduated high school; 15% completed public school EMH programs. Thirty-six percent (36%) completed college; 8% completed or are pursuing graduate study.

Adult testing showed an increase of IQ scores relative to the Subjects' population Mean. WAIS Mean IQ's were all in the average range. Mean Reading, Spelling and Arithmetic scores ranked in that order. Reading and Spelling scores were related to discrepancies between Verbal and Performance IQ. Personality test findings suggested vulnerability to stress.

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INTRODUCTION

Children of normal intelligence who do not learn adequately, despite competent instruction and sufficient motivation, are estimated to comprise from two to 15% of the school population. Currently, the most acceptable classifying label, Specific Learning Disabilities, is favored by educators and has been generally accepted by other professions giving service to these children. The broadness of this category gives no hint of the diversity of symptoms and etiology upon which the classification is based.

The troublesome problem of learning disability has been identified under various labels since Hinshelwood (1895) reported a case of "word blindness" at the end of the nineteenth century. In subsequent years, the problem as it affects the learning of reading has been studied as maturational lag (Potzl, 1924), strephosymbolia (Orton, 1937), dyslexia, developmental dyslexia, and specific reading disability (Fernald, 1943). More generalized forms of learning disability, not limited to reading, have been reported in children following brain damage (Lord, 1973, Strauss and Lehtinen, 1947, Taylor, 1959 and others). Identification of a group of children with subtle neurological signs, tested normal intelligence, and diffuse learning problems apparently related to psychoneurological dysfunction (Strauss and Lehtinen, 1947, Strauss and Kephart, 1955, Myklebust, 1960) resulted in the adoption of the term "minimal cerebral dysfunction" (1966). The current term, Specific Learning Disability, reflects the dissatisfaction and frustration associated with efforts to relate educational procedures to medical diagnoses.

Nonetheless, efforts to improve the educational lot of children with learning disabilities have moved forward despite the difficulties of diagnosis and definition.

The Cove School was founded in 1947 in Racine, Wisconsin for the specific purpose of providing a total educational experience for children of normal or potentially normal intelligence who had learning problems associated with minimal brain damage or cerebral dysfunction. The school in Racine served only residential students; in 1950, a day unit was opened in Evanston, Illinois (within commuting distance of the residential unit). Both units maintained a small enrollment which allowed personal attention to each student and considerable scope for developing teaching approaches which would be appropriate for a given child's unique learning needs. The emphasis in both units was educational; the goals were to improve the child's perceptual and integrative systems (particularly auditory and visual), to teach the basic academic skills of the primary and elementary grades, and to develop habits of organization and study which would enable him to continue to learn in the regular school environment.

Instruction was in small classes with children grouped according to chronological age and social maturity rather than type of disability. Speech correction was given individually or in small groups to those children in need. On rare occasions, a child with particularly complex or difficult learning problems might receive individual instruction in addition to his classroom work. Similarly, children with significant problems in visual and auditory perception were given additional individual help as staff availability and budget would allow.

The length of enrollment was short-term, ranging from one year commonly to three or four; occasionally a child might remain as long as five or six years. His transfer to a less specialized school was dependent upon his academic progress, his level of motivation for learning, and his social-emotional development. The goal was to achieve such a transfer by the time a child reached the School's age limit (12 in the residential unit, 13 in the day unit).

All diagnostic studies on the children were done prior to enrollment by individuals or centers not associated with the School. Reports were forwarded to the School preliminary to the observation and screening which were a necessary component of the enrollment procedure. A concerted effort was made to screen out children whose poor achievement and/or behavioral and emotional problems were psychogenic in origin, and, insofar as could be determined, the result of psychological problems within the family, as the School was not designed to serve as a psychiatric treatment center. This selection policy did not deny the existence of emotional problems of varying degrees of severity in children with learning disabilities. It was designed to select those students whose emotional problems could be considered as secondary to the original dysfunctioning organic substrate, and which could be improved through the success experience of learning and the positive mileau of the School environment. Many children in the day unit who had already started to work with a psychotherapist continued for a portion of the time they were enrolled at Cove; others continued throughout their Cove experience. A number of the children had no psychotherapy.

Behavior problems, primarily hyperactivity and restlessness were common. Medications in use today for the control of hyperactivity had not yet been developed, and those in use were not always well accepted as particularly helpful. The treatment process was chiefly that of adjusting the program to the child's tolerance level and gradually increasing it through academic success and social learning.

Recent years have witnessed an enormous increase in psychological and educational diagnostic programs throughout the country. The objectives of these programs have been variously defined as remediating the disabilities, reducing the gap between achievement and potential, teaching the child to compensate for his disabilities, or most simply, helping the child attain a functional level of competence in reading and arithmetic. The effectiveness of various remedial procedures has

not yet been well documented. Decisions regarding the types and intensity of services have been made with little supporting data. Adult outcome studies of children with learning disabilities are sparse.

The follow-up study reported here concerns 90 adults who were diagnosed in childhood as having learning disabilities due to cerebral dysfunction (minimal brain dysfunction, brain injury) and who received remedial education at the Cove School between the ages of six and 13. These adults now 21 to 39 years of age, attended the Cove School during the 20-year period between 1947 and 1967. As children, they were medically diagnosed and psychologically evaluated before enrollment; during their average stay of three years, they were re-evaluated psychologically and educationally at periodic intervals. They are predominantly male, mainly from white middle class to upper middle class urban and suburban environments. During past years when no programs were available in the public schools, many of the children were referred to Cove by school psychologists and other professionals as a direct consequence of the child's failure to learn and/or to adjust within his own local school setting.

The methods used for collecting the data were questionnaire, interview and psychological and personality testing.

Subjects were selected on the basis of the following criteria:
(1) Enrollment at the school for a minimum period of one year;
(2) Tested IQ of 80 or above on at least one measure of intelligence given in childhood (Stanford-Binet or at least one scale of the Children's Wechsler).

Although this IQ limit resulted in the inclusion of 27 Subjects with Full Scale IQs below 80 on the Children's Wechsler, it was felt important to include those students for several reasons. There is general agreement that the psychological testing of very young children yields less reliable results than the testing of older children. Similarly, in the testing of children with observable problems in giving and sustaining attention, of hyperactivity, or of language development the reliability of test results has also been questioned.

Furthermore, at the time these Subjects were enrolled at Cove School, it was the accepted hypothesis that formal test results could not be considered as measures of "potential" intelligence and that a student's potential could only become apparent after the remediation of his deficit areas had been accomplished.

All Subjects for whom a current address was available or could be obtained with a reasonable search were included.

The study was conducted in two phases. The first phase consisted of a detailed questionnaire sent to the parents of 100 former students inquiring into the students' present educational, occupational and social status, as well as any remediation or treatment given after the student left Cove School. If a reply was not received within a reasonable interval, the parent was contacted by telephone. Ninety-three positive responses were received; seven did not wish to participate. In four instances, the parent(s) felt that the child had made a satisfactory life adjustment and they did not wish the researchers to intrude upon it. The motivations of the other three were not explored. Questionnaires were obtained from 91 respondents. In a few instances in which the parent had not filled out the questionnaire because he or she was deceased or otherwise unavailable, the Subject himself performed this task. Two subjects were not included in the study because of their ambivalence about the testing, and family circumstances which made it impractical to obtain the information requested in the questionnaire.

Major items of information sought by means of the questionnaire related to the Subject's present work and level of social and economic independence, schools attended since leaving Cove, higher education or vocational training obtained, special help needed and received, areas of particular academic difficulty, psychological or counseling help obtained, existence of physical problems, conflicts with the law, and occupational and educational level of the family.

The second phase of the study consisted of interview and testing. In all, 72 Subjects were tested, three Subjects were interviewed only. The interview was structured to obtain information regarding the Subjects' feelings about his school attendance, what subject-matter areas he felt were frustrating or difficult and which ones he enjoyed, feelings about needing special help, leisure time interests and activities, work history, present employment, salary range, job satisfaction, money management, living arrangements, social activities, friendships, dating, areas of continuing frustration or discontent, goals and aspirations for the future.

The following standardized psychological tests were utilized and administered individually to 72 Subjects:

1. Intellectual functioning: The Wechsler Adult Intelligence Scale (WAIS)

2. Achievement tests:

   a. Wide Range Achievement Test (WRAT) Oral Word Recognition or Decoding, Spelling, Arithmetic Computation).

   b. Tests of reading comprehension:

      (1) Nelson-Denny Reading Test (Vocabulary, Comprehension and Speed) for those Subjects who had attained 9th grade or above decoding level on the WRAT.

      (2) Monroe-Sherman Group Diagnostic Reading Aptitude and Achievement Tests: Intermediate Form (Paragraph Meaning) for those Subjects who had achieved less than 9th grade decoding on the WRAT.

      (3) Personality and Motivation:
      Minnesota Multiphasic Personality Inventory (MMPI) administered either by booklet or taped version.

The same battery of tests was administered to all Subjects with a slight alteration of the evaluation of reading comprehension. Two reading tests were needed to evaluate this area as it was felt that no single test of reading comprehension could provide adequate results for all of the Subjects due to the very wide range of academic experiences in the group.

All tests were administered individually with ample opportunity for development and maintaining of rapport. The time required for testing only ranged from four to eight hours (total evaluation one to two days). Some Subjects were seen in two or more sessions. The tests were all given by the two authors and an experienced clinical psychologist who had also known a number of the Subjects as children.

An attempt was made to meet the individual needs of the Subjects whenever possible. The majority of the Subjects were tested at Cove School. For those who were working, testing was scheduled on weekends and evenings. Students attending college came in on vacations. For those who had come in from out of town, the sessions were interrupted with breaks, friendly discussion, etc. Arrangements were made for them at a nearby motel, if necessary, and they were usually taken to dinner. The examiners were available to them for whatever guidance they might wish. All Subjects were compensated $25.00 for their time.

A probable most significant factor in the Subjects' motivations were their previous familiarity and relationships with Cove School and the examiners. All the Subjects wanted, or at least had agreed, to cooperate in the Study. There were certainly differences in both interest and motivation among Subjects, ranging from very positive expressions to those that one might consider ambivalent or even somewhat defensive and negative. It appeared that for some of the Subjects the testing experience could have rearoused early painful memories.

In eleven instances in which it was inconvenient for a Subject to arrange a trip to Evanston for re-testing, one of the examiners traveled to the Subject's home city.

The out-of-town testing provided an additional feature in some instances, where examiner had the opportunity to also confer with the parents. Of the eleven Subjects tested in their home city, six were seen at their homes, three at the motel where the examiner was staying, and one at a farm where the Subject was employed. In the instances of the home testing, the families were superbly cooperative in their effort to facilitate the testing and to make Subject and examiner as comfortable as possible. In conjunction with the testing, there followed a conference with the parents (or in one case, the parent surrogates) during which their current concerns about present and future were frankly expressed. These conferences ranged in length of time from one to three hours.

Visiting the setting as well as meeting those involved in the life situation of a Subject provided an additional qualitative dimension to the evaluation experience.

REVIEW OF LITERATURE

Investigations relevant to the present study may be divided into several categories according to diagnostic criteria, age of subjects and length of follow-up and measures of adult outcome.

1) Several studies have included learning disorders and academic failure as symptoms of more general emotional and/or neurological problems. The researchers in these studies have sought to establish whether associated problems of behavior and learning difficulties have persisted into adulthood and affected vocational and social adjustment. Studies of this type have generally dealt with original diagnoses of minimal brain dysfunction or hyperactivity.

2) Some studies have attempted to define patterns of academic failure and school maladjustment by following children with early developmental, intellectual, or behavioral signs to later junctures in their school careers. The span of time for such outcome investigations is generally from elementary school to high school. Researchers working in this area have attempted to identify factors which can be correlated with later academic success or failure. They look for early deviant behaviors, emotional difficulties, and developmental lags which they feel may predict later academic success.

3) A third kind of study attempts to determine the persistence of specific learning problems or academic deficiencies into adulthood. Most of these studies have focused on reading-related skills. These investigations have tried to measure whether the specific deficiencies in the school setting have continued into adulthood and how they may have affected social and vocational adjustments and success. In addition, some of the researchers in this category have made inferences as to the effects of intervening remedial education or academic therapy.

In general, research into the long term effect of learning disabilities has not lead to consistent conclusions. The results are often ambiguous and contradictory. An obvious source of these differences is the lack of uniformity of diagnostic procedures used among researchers. In addition, the kinds of intellectual and academic tests used to distinguish the original study population vary among all investigations reviewed. To further compound the problem, measures of adult outcome vary widely in the literature. The ability to compare studies is seriously weakened when each researcher has his own hypothesis about what constitutes adult achievement, adjustment, and success. Other differences include referral patterns of the childhood study population, non-uniform diagnostic procedures, and different opinions about the nature of learning disorders and behavioral problems. Because of these differences the research objectives of studies available in the literature are not truly compatible. The greatest differences, however, are in the selection of the study population themselves. Some study groups were drawn from client populations of psychiatric clinics, some from reading

clinics, some children seen in private treatment centers, while others are sample failures from the normal school popululation. Selection bias in available follow-up studies exists because of different socio-economic status, race, and a variety of demographic variables among subjects which makes a valid comparison among the studies virtually impossible. Thus from none of the available studies can universal truths be drawn regarding "learning disabled". To search for an overall pattern of adult intellectual and social functioning among previous outcome investigations is discouraging if only because the definitions, selections, and characterizations of the original childhood study groups differ so greatly.

Important features of each previous research study have been looked at during the Cove study as a means of comparing select hypotheses and results. This review will emphasize more recent contributions of adult outcome research.

Adult Outcome Studies of Hyperactivity and Minimal Brain Dysfunction

The major long term follow-up study in the first category is that of Menkes, et al. (1967). They attempted to measure adult outcome of 18 patients seen between 1937 to 1946 at a child psychiatric clinic. Their Subjects were retrospectively diagnosed as having shown symptoms of hyperactivity and minimal brain dysfunction. Patients' records were reviewed for indications of neurological abnormality. Learning disorders were seen as but one symptom of the overall diagnosis. Psychotic children, children with seizures and those with IQs less than 70 were eliminated in selecting the 18 Subjects for the study. Of the 18 chosen, 14 were reexamined at follow-up and a determination was made of social and psychological adjustment. The period of follow-up was 25 years. The conclusions were, of course, limited by the size of the study group and the differences in diagnostic criteria used during childhood treatment and at follow-up. There seemed to be a persistence of neurological symptoms over time, the severity of which affected later adjustment. A correlation was established between adult and childhood IQ scores, independent living and socio-economic status, i.e., those scoring the highest were best able to support themselves.

Child Outcome Studies of Early Academic Deficiencies

Fitzsimmons, et al. (1969) verify that patterns of later school failure may be predicted from early academic deficiency and that intervening remediation can improve student performance and significantly increase school performance. They are in agreement with Robinson and Smith (1962) and Rawson (1968) on the significant beneficial effect of remediation. Fitzsimmons, et al. looked retrospectively at the school records of 270 students who performed poorly during high school or who dropped out of high school. They found a noticeable pattern of early failure and poor performance. They noted that this pattern expanded

rapidly during elementary school years and encompassed an ever increasing number of academic courses. These investigators chose their study population only on the basis of academic performance and did not differentiate Subjects according to behavioral criteria. They used no intelligence or psychological testing data to distinguish poor academic performers from the normal school population. Their results, furthermore, included no measures of social adjustment.

The Hinton and Knights (1971) study also described patterns of school failure in an investigation which compared original and follow-up IQ and academic testing scores. Their results support Ames' (1968) contention that IQ scores should be used as screening devices to determine the need for academic therapy. Hinton and Knights found IQ and language ability tests to be potent predictors of academic success as well as of general school adjustment. The study differentiated outcome for groups having only academic deficiencies and those with accompanying behavior-related problems. They demonstrated high rates of improvement among those subjects having only academic deficiencies.

A recent study by Huessy and Cohen (1976) followed fifty grade school children for seven years to evaluate their adjustment in high school. The original subjects were rated for signs and symptoms of hyperactivity. They were evaluated during the seven year interim for the persistence of academic dysfunction and behavioral maladjustment. The number of early symptoms noted seemed to be a predictor of the degree of later learning problems and social difficulty. Many of the changes in behavior that were observed depended on the age at which the behavioral problems had first been detected.

Previously Hunter and Lewis (1973) reported on 18 dyslexic boys ages 9-13 in a 2 year follow-up study. Despite remedial efforts, the subjects showed lower academic achievement and poorer social adjustment than a matched control group. As in other studies reported here, higher WISC scores were correlated with academic improvement and adjustment.

Most outcome studies of school careers and patterns of academic failure have focused on the importance of early reading disability as predictive of later academic and social difficulties. Some have shown that while remedial efforts have resulted in improvement of skills they have been ineffectual in producing long-lasting changes in the subjects' rank within the comparison group (Hardy, 1968). The Rawson, and Robinson and Smith studies seem to contradict this conclusion. The selection of subjects for study, the variance of diagnostic procedures and evaluation measures may be at the root of this disparity. Hardy demonstrates that substantial academic progress fails to be sustained as the disabled reader approaches adulthood.

Weiss et al. (1971) followed 64 children diagnosed as hyperactive with behavioral and learning disorders from grade school to adolescence. The follow-up interval was 5 years. The investigation attempted to differentiate outcome on several levels, which included evaluation measures of behavior and adjustment outside the school environment. The subjects were originally between 6 and 13 years of age, had a full IQ score greater than 84 and had not been previously diagnosed as psychotic.

The children, all attending regular school, were drawn from a client pool of pediatric and psychiatric out-patient facilities. Few had received academic remediation at the time of referral. Evaluation measures at follow-up included academic and psychometric test scores and observations concerning the subjects' behavior and adjustment as given by parents, teachers, mental health professionals and the children themselves. Rating scales were developed which compared academic functioning, cognitive and motor functioning, neurophysical status, social adaptation and family status. The outcome testing and evaluation revealed that although most symptoms of hyperactivity had diminished, learning dysfunctions and social maladjustment persisted. The variable most strongly correlated with academic success was the original IQ score. No variable except aggressiveness significantly predicted anti-social behavior. The authors conclude, "Disorders of attention and concentration remain. Concomitant is a chronic and severe underachievement in school despite the maintenance of normal or superior intelligence as measured by the WISC".

Adult Outcome Studies of Specific Learning Disorders

Herjanic and Penick (1972) reviewed major outcome studies of children diagnosed as "disabled readers". They discovered recent studies to have widely varying, ambiguous, and often conflicting results as to the level of adult intellectual achievement as well as for vocational and social adjustment. In their conclusion the authors criticized recent research, often finding that the focus of study and the scope of evaluation measures were too narrow for conclusions to be meaningful.

Three optimistic reports are those of Robinson and Smith, Rawson, and Preston and Yarrington (1967). All three investigations demonstrated that reading disorders or dysfunctions could be successfully remediated and the remediation could have lasting effect into young adulthood. They do not find that childhood reading disabilities detrimentally affect vocational or social adjustment. These findings are in disagreement with those of Hardy. The most likely reasons for the contradiction once again seem to lie in the selection of the study populations and the diagnostic criteria used to define the original childhood disorders. Furthermore the results of research using a study group diagnosed as having reading deficits alone is not comparable to results obtained with study groups diagnosed for more general learning dysfunctions, neurological disorders, school adjustment problems and behavioral difficulties. Another factor distinguishing the three studies just mentioned is the fact that their subjects did in fact all receive remediation for reading deficits. Though general claims for the efficacy of remedial treatment is made in these reports, the subjects are not socially and racially heterogeneous enough to be representative of the learning disabled population. Herjanic and Penick present a similar view in their summary of the Preston and Yarrington study. "While Preston and Yarrington reported little difference in the educational and occupational outcome between their reading disabled sample and the general population, this conclusion assumes that the clients of a university reading clinic are typical of the nation as a whole. Racial, social class and geographic factors make this assumption tenuous".

In 1968, Margaret Rawson published a follow-up report on 56 male adults, previously students in a private school. Thirty-six subjects

had been diagnosed as dyslexic. At follow-up in young adulthood, most subjects had successfully assumed occupations in the upper socio-economic class and had made adequate social adjustments. No correlation was found between academic achievement at follow-up and the severity of earlier disabilities. Variables unique to this group were upper class status of the subjects' parents and a high childhood median IQ (131). Both of these factors may have had a potential effect on outcome.

Balow and Blomquist (1965) found remediation not helpful in overcoming reading disabilities for a group of 32 former reading clinic clients. Follow-up psychological testing revealed emotional and social adjustment difficulties although the sample was too small for significant and major claims. Important in this study was the attempt to evaluate adult outcome and adjustment in terms broader than just vocational and economic status.

Silver and Hagin (1964) measured the adult accomplishments of 24 former reading clinic clients. They divided the original study group according to diagnoses of Developmental Disability or Organic Dysfunction. A matched control group having neither symptoms was also studied. The children whose original academic deficiency has been least severe and had been given a diagnosis of Developmental Disability demonstrated the greatest academic ability at follow-up testing. The children with the Organic diagnosis clearly demonstrated a persistence of perceptual disorders despite adequate vocational and social adjustment. Significant to the present Cove study was the testing procedure used. The battery of tests administered at follow-up was similar to those given 10 years earlier and this fact would seem to lend reliability to the results.

In adult outcome studies reviewed thus far, a somewhat narrow focus was used in measuring the occupational achievement and social adjustment of the subjects. Evaluation often involved a comparison of the adult study group's occupational status to that of general population norms. Social adjustment, it seems, becomes equated with the absence of emotional disorders. Though this approach is of some value in measuring the potential of learning disabled children, it fails to identify other significant factors known to be indicative of personal social and vocational maladjustment.

Hardy's comprehensive follow-up study completed in 1968 offered comparatively wider measures of adult success and achievement for 40 formerly reading-handicapped children. Her follow-up evaluation included measures both of later school adjustment as well as measures of vocational and social adjustment in young adulthood.

Hardy's evaluation of vocational adjustment went beyond occupational status and rated the ability to maintain employment satisfying to the subject. Social adjustment scores were based on a wide number of factors which measured the ability of subjects to relate meaningfully to people with whom they lived. It is notable that her measure of vocational outcome departed considerably from that of Rawson, Preston and Yarrington, and Robinson and Smith in giving equal emphasis to personal satisfaction and occupational status. Her social adjustment rating scales were also comprehensive in the type of information that they elicited.

Hardy found satisfactory vocational adjustment for formerly "retarded" readers but unsatisfactory social adjustment as compared with a control group of normal readers. Sixty-five percent of her study group reported vocational satisfaction and stability in their place of employment despite the fact that the majority had assumed unskilled or semi-skilled occupations.

In her evaluation of academic deficiency, Hardy found significant grade score gains, except in vocabulary. Reading in general, however, remained a difficulty persisting into young adulthood. She also concluded that remedial treatment showed little long-term differential effect, a result contradicting Rawson, Preston and Yarrington, and Robinson and Smith but supporting the results of the Balow and Blomquist study. Another significant finding was that the degree of earlier reading handicap did not seem to influence eventual vocational and social adjustment. This finding disagreed with that of Menkis et al. and Silver and Hagin. Here again the difference in results may be due in part to criteria used to select the original study populations and non-compatible measures of adult achievement.

RESULTS

The first series of tables presents data on the characteristics of the study population in regard to sex, socio-economic level of the family and composition of the family unit.

Over 70 percent of the study population was male. This finding is consistent with findings in other studies of children with learning disabilities. The overwhelming majority of children came from middle-class families, with over 80 percent of the fathers in professional or managerial positions. The level of education reported by both parents was also high. Ninety-eight percent of the fathers had a high school education or higher; in fact, almost 75 percent had completed college and 34 percent had professional degrees.

More than half of the mothers reported themselves as housewives but as many as 42 percent either had worked or were working. Most were in professional (15%) or clerical (15%) occupations. Forty-two (42) percent had completed college and seven percent had an advanced degree. Ninety-nine percent had a high school education at the very least.

The marital status of the parents of the study population reflected a high degree of stability. Over 82 percent of the Subjects came from families which remained intact during the child's early years, during his enrollment at Cove and throughout his adolescence. Only seven divorces were reported as having occurred during the Subject's childhood or adolescence, and nine parents (four mothers and five fathers) had died during the same time span.

Nearly half (41.7%) of the Subjects were first born children, and approximately a fourth were second born in the family. Third, fourth or fifth born children were represented in smaller numbers. Seven Subjects were adopted and information regarding their birth order was not known.

Almost two-thirds of the Subjects (63%) came from families with two or three children; 32% had one sibling and 31% had two. Eighteen percent had three siblings and 10% came from families in which there were five or more children. Nine percent (9%) of the group were only children.

The great majority of Subjects (85%) came from families in which all of the children were the natural born children of the parents. A small number (6%) came from families in which some children were natural born and some were adopted. Very few (4%) were from families in which all of the children were adopted. The remainder (6%) had families in which there was a step-father or step-mother with children from the second marriage, or in which families of divorced or widowed parents were combined.

Table 1. CHARACTERISTICS OF STUDY POPULATION I

a.

Sex	Number	%
Male	66	73
Female	25	27
Total	91	100%

b. Educational Level of Parents (highest program completed)

	Father		Mother	
	Number	%	Number	%
Post Masters or Professional	31	34.0	6	6.6
Masters	8	8.8	1	1.1
College	29	31.9	38	41.7
High School and Two Years College	5	5.5	7	7.7
Technical School	2	2.2	2	2.2
High School	14	15.4	36	39.5
Did not Complete High School	2	2.2	1	1.1
Total	91	100%	91	100%

Table 1. CHARACTERISTICS OF STUDY POPULATION (CONTINUED)

c. Occupational Status of Parents

	Father		Mother	
	Number	%	Number	%
Professional	44	48.3	14	15.4
Managers, Officials	32	35.1	5	5.5
Clerical & kindred	3	3.3	14	15.4
Sales Workers	4	4.4	2	2.2
Craftsmen, Foremen	4	4.4	1	1.1
Operatives	1	1.1		
Service Workers	2	2.2	1	1.1
Laborers	1	1.1		
Other (Actress)			1	1.1
Housewife			53	58.2
Total	91	100%	91	100%

d. Family Unit during Subject's Childhood or Adolescence

	Number	%
Family intact	75	82.4
Parents divorced	7	7.7
Parent deceased	9	9.9
Mother 4		
Father 5		
	91	100%

Table 1. CHARACTERISTICS OF STUDY POPULATION (CONTINUED)

e. Birth Order of Subject

	Number	%
First Child	38	41.7%
Second Child	26	28.5
Third Child	12	13.2
Fourth Child	6	6.6
Fifth or more	2	2.2
Adopted, birth order not known	7	7.7
Total	91	100%

f. Number of Siblings

	Number	%
Only Child	8	8.8
One Sibling	29	31.8
Two Siblings	28	30.7
Three Siblings	17	18.6
Four and over	9	9.9
Total	91	100%

Table 1. CHARACTERISTICS OF STUDY POPULATION (CONTINUED)

g. Composition of Family

	Number	%
All natural children	77	84.6
All adopted	4	4.4
Natural & adopted children	5	5.5
Same mother, different father	1	1.1
Same father, different mother	3	3.3
Combined families	1	1.1
Total	91	100%

The next series of tables presents data on etiology and additional handicaps.

All of the children who were enrolled were required to have had a diagnostic psychological and neurological study prior to enrollment to establish that the learning problems were not functional in origin. Many but by no means all or even half had electro-encephalograms as part of the neurological examination; this was ordered at the discretion of the neurologist. The etiology of the child's problem if known was reported to the School by the parents at initial interview or in a referral letter or report from a physician, psychologist, clinic, etc. In most instances the etiology was unknown although the physician had diagnosed a cerebral dysfunction at that time referred to as minimal brain damage. The known etiologies varied and are listed by frequency in Table 2 a.

As seen in Table 2b. somewhat more than half (55%) of the study population had additional physical or developmental handicaps, which either complicated the learning problem or constituted an identifiable and somewhat specific facet of it. Almost one-third (29.7%) of the study population had one diagnosed physical problem in addition to the learning disability but 20% had two additional physical or developmental problems and several children had as many as three or four.

In Table 2c, is a listing of the types of problems and the number of times they occurred in the study population. This table may include each child more than once if he had more than one diagnosed handicap. Most common were speech problems which were present in 25 children, nearly one-third of the group. Another fifth (19%) of the group had language problems usually accompanied by some speech involvement although not necessarily. Thirteen percent had mild cerebral palsies which required little if any physical treatment. Eight children (9%) had seizures which were controlled by medication although many more had abnormal EEGs without clinical seizures. The low incidence of active seizures may be explained by the School's enrollment policy which required that the child be seizure free or that seizures be completely controlled. The conditions identified as vision problems in seven children (8%) did not include common refractive errors but consisted of such conditions as congenital cataract, detached retina, optic nerve atrophy, etc. Six children (7%) had hearing problems, in three cases of sufficient degree to warrant the use of a hearing aid. Five children (6%) had other physical conditions such as cleft palate, spina bifida, etc.

Further problems, more subtle and hard to define but nonetheless observed, were reported in the area of emotional development. (Table 2d.) The diagnostic referral reports of 58 (64%) of the Subjects made reference to emotional problems in addition to the learning disability and thought to be secondary to it, and 28 reports

(31%) described poor behavior control. Often these were reported as occurring in the same Subjects, but not always. For another 17 Subjects (19%), the diagnostic information contained reports indicating low self-esteem, often manifested in discouragement, lack of self-confidence, unwillingness to try, etc. as an accompanying and complicating problem. In no case did the emotional or behavior problems manifest themselves in pre-delinquent or anti-social behaviors. The policy of the School was explicit in not enrolling children with problems of such nature.

As in Table 2c a child may be included twice if both emotional problems and poor behavior control were reported. Children with poor self-esteem reported as the major reactive symptom to the learning disability are included only once.

Table 2e shows the source of referrals to Cove. The largest percentage of students were referred by psychologists (34%). Another group of 13 (14%) was referred by psychiatrists. Other referring specialist or agencies were represented in smaller numbers.

Table 2. CHARACTERISTICS OF STUDY POPULATION II

a. Etiology

	Number	%
Unknown	33	36.2
Difficult delivery	22	24.2
Accident or illness	15	16.5
Premature	7	7.7
Pregnancy complication	6	6.6
Cyanosis	2	2.2
Arrested Hydrocephalus	2	2.2
Other (Caesarian, Jaundice, etc.)	4	4.4
Total	91	100%

b. Ss WITH DEVELOPMENTAL OR PHYSICAL PROBLEMS IN ADDITION TO LEARNING PROBLEMS

Additional physical problems	Number of Ss	% of total population (91)
One	27	29.7
Two	18	19.8
Three	4	4.4
Four	1	1.1
Total	50	55.0%

Table 2. CHARACTERISTICS OF STUDY POPULATION (CONTINUED)

c. Types of Developmental or Physical Problems in Addition to Learning Problem

	Number of Ss	% of total population (91)
Speech	25	27.5
Language	17	18.7
Cerebral Palsy	12	13.2
Seizures	8	8.8
Vision	7	7.7
Hearing	6	6.6
Other	5	5.5

d. Ss with Diagnosed Emotional and Behavior Problems in Addition to Learning Problems

	Number of Ss	% of total population (91)
Emotional overlay	58	63.7
Poor behavior control	28	30.7
Low self-esteem	17	18.6

Table 2. CHARACTERISTICS OF STUDY POPULATION (CONTINUED)

e. Referral to Cove

	Number	%
Psychologist	31	34.1
Psychiatrist	13	14.2
Neurologist	8	8.8
Pediatrician	6	6.6
School	6	6.6
Speech & Hearing Clinic	6	6.6
Mental Health Agency	6	6.6
Social Agency	1	1.1
Self referrals or other	14	15.4
	91	100%

Table 3. CHARACTERISTICS OF STUDY POPULATION III

a. Chronological Age at Enrollment at Cove

	Residence	%	Day	%	Total
Below 6 years	2	6.2	0	0	2
6-0 to 6-11	2	6.2	5	7.8	7
7-0 to 7-11	9	28.1	10	15.6	19
8-0 to 8-11	6	18.8	12	18.7	18
9-0 to 9-11	6	18.8	13	20.0	19
10-0 to 10-11	6	18.8	18	28.0	24
11-0 to 11-11	1	3.1	5	7.8	6
12-0 to 12-11	0	0	1	1.6	1
	32	100%	64	100%	96*

Table 3 shows the ages at which children entered Cove, the ages at dismissal and the length of enrollment.

Over 80% of the study population entered either the residential or the day unit between the ages of seven and ten. The largest percentage enrolling at any given age in the residential unit was 28% at age seven; the Mean age of enrollment in the residential program was 8 years, 7 months. The age at which the largest percentage of the study population was enrolled in the day unit was 10 (28%); the Mean age of enrollment in the day program was 9 years, 2 months.

* Five children attended both residential and day units.

Table 3. CHARACTERISTICS OF STUDY POPULATION (CONTINUED)

b. Chronological Age at Dismissal from Cove

	Residence	%	Day	%	Total
6-0 to 6-11	2	6.2	0	0	2
7-0 to 7-11	0	0	0	0	0
8-0 to 8-11	0	0	4	6.3	4
9-0 to 9-11	3	9.3	3	4.6	6
10-0 to 10-11	1	3.1	6	9.3	7
11-0 to 11-11	11	34.4	12	18.7	23
12-0 to 12-11	11	34.4	20	31.3	31
13-0 to 13-11	2	6.2	17	26.5	19
14-0 to 14-11	2	6.2	1	1.6	3
15-0 to 15-11	0		1	1.6	1
	32	100%	64	100%	96*

Nearly 70% of the study population attending the residential unit was dismissed at ages 11 and 12, the Mean age of dismissal being 11 years, 6 months. Students tended to be dismissed at a somewhat later age in the day unit - approximately 75% were dismissed at ages 11, 12 and 13; the Mean age of dismissal was 12 years, 1 month. This was a function not only of the child's progress but of the different age limits of the two units. In a few unusual circumstances, usually related to problems in the home or lack of any reasonable school facility in the child's neighborhood, a child remained beyond the School's age limit. The Mean age of dismissal from both units was 12 years.

* Five children attended both residential and day units.

Table 3. CHARACTERISTICS OF STUDY POPULATION (CONTINUED)

c. Length of Cove Enrollment

Years	Residence	%	Day	%	Combined	%
1	5	15.6	4	6.3	9	9.4
2	7	21.9	18	28.1	25	26.0
3	8	25.0	18	28.1	26	27.1
4	3	9.4	20	31.3	23	24.0
5	9	28.1	2	3.1	11	11.4
6	0	0	2	3.1	2	2.1
	32	100%	64	100%	96*	100%

The Mean length of stay was 3.0 years for both residential and day groups combined. There was no difference in the average length of stay in either of the two programs; the average length of stay in residence was 3.1 years, in the day program 2.9 years.

* Five children attended both residential and day units.

Table 4. Present Status of 90 Subjects

	Number	%	%
Students			
Full-time students	11	12.2	
Workshop trainees	2	2.2	
			14.4
Student, Part-time, Working Part-time	1		1.1
Subjects With Formal Education Completed			
Gainfully Employed:			
Full-time	52	57.7	
Seasonal employment	1	1.1	
Part-time, Seeking full-time	1	1.1	
Part-time only	1	1.1	
Subsidized employment	3	3.3	64.4
Housewife	1		1.1
Presently Unemployed			
Lost job after successful employment	1	1.1	
Changing job	1	1.1	2.2
Looking after graduation	2		4.4
Marginally Employable	5		5.6
Other			
Sheltered Workshop	5	5.6	
Life Care	3	3.3	8.9
Total	90		100%

Table 4 shows the present status of the Subjects in four major subdivisions: those who have not yet completed their formal education, those whose formal education is essentially complete and who are employed or if presently unemployed have had a successful job experience, or who are seeking employment after graduation, those whose employment futures are still unresolved, and those who were not able to develop to a level of independence in self-care and employment.

Eleven Subjects (12.2%) were still in full-time attendance at various colleges and universities at the time of the study, three at a graduate level. Two students (2.2%) were enrolled in workshop training programs, one of a general nature and one offering preparation in working with the deaf, including learning sign language. One was a part-time college student, working as a travel agent during part of the year.

Sixty Subjects (67%) - 59 and the part-time student - were employed at the time of the study. Forty-seven were males and 13 were females. 52 (almost 60%) of the total study population, were employed in full-time occupations. One former student had completed a two year college and had then chosen to work seasonally doing ski-patrol and landscaping. Two had part-time jobs. One had taken what employment he could obtain in a time of economic recession, but continued to look for full-time employment. One worked variable hours as a short order cook. One was a full-time housewife with two children. Three of the former students were in situations where a portion of the money earned was contributed by their parents in order to provide a satisfactory and satisfying job in circumstances which offered emotional support and some guidance.

Four Subjects were unemployed. One had lost his job after five years of employment with the same company and one had decided to change to a job which was more to her liking. (It was learned before conclusion of the study that she had been successful in finding a job as a model, rather than continuing to work as a clerk-receptionist.) Two had just completed their education (one a junior college and one a four year liberal arts college) and were just entering the job market. Both were females and both were hoping to find employment in some area of social work.

Five Subjects (5.6%) were judged to be marginally employable on the basis of their job history or job training experience, expectations, and attitudes. These were persons who had held a number of jobs for short periods of time ranging from a few days to several months and then had either quit or been dismissed, or who seemed unable to establish realistic vocational objectives, or to utilize the training offered in workshop programs. It was projected that a positive transition to economic independence or semi-independence for these Subjects would depend upon fortuitous circumstance and significant additional support from parents and societal agencies taking the form of well-planned opportunities, skillful job counseling and personal guidance, realistic social work assistance, etc.

Five Subjects (5.6%) were working in sheltered workshops. Three (3.3%) were in life-care institutions.

Table 4 shows the present academic level of the 11 Subjects who were still full-time students.

Table 5. PRESENT STATUS OF FULL-TIME STUDENTS

	Male	Female	Total
Graduate School			
Enrolled in doctoral program	1	0	1
Enrolled in master's program	2	0	2
Undergraduate School			
Completing undergraduate applying to graduate schools	3	0	3
Enrolled in 4 year undergraduate program	3	2	5
	9	2	11

The students consisted of 9 males and 2 females. The three male graduate students were enrolled in programs of data storage and retrieval (library science), therapeutic recreation, and anthropolgy. Three of the male undergraduate students were close to completion of their senior semester; two were applying to enter graduate schools in social work and psychology, one had completed a pre-medical program and was applying to medical school. One male of the five undergraduate students was majoring in business; the other four had not yet selected a field of major study.

Table 6 indicates the number of years the 60 employed Subjects had been working in their present positions.

Thirty (30), or 50% of the group had been employed in their present positions 3 or more years. Fourteen or 23% had held their positions for a year or more. Sixteen Subjects had been employed in their present positions for less than a year. However, 11 of the 16 had recently graduated or concluded their college education and had just entered the job market. The remaining five of the group of 16 had held other jobs.

For 25 (42%) of the employed Subjects, the position in which they were currently employed was the first position they had obtained since graduation, either from high school or college.

The specific occupations in which the 60 employed Subjects were engaged are listed in Tables 7 and 8 and classified according

Table 6. NUMBER OF YEARS AT PRESENT JOB

Number of Years	Male	Female	Total
Less than one year	14	2	16
One year	2	1	3
Two years	4	7	11
Three years	9	0	9
Four years	3	0	3
Five years	2	0	2
Six years	3	1	4
Seven years	4	0	4
Eight years	2	0	2
Nine years	1	0	1
Ten years	1	2	3
Eleven years	2	0	2
	47	13	60

to the Dictionary of Occupational Titles, Volume I, 1965. This table includes the two Subjects who had been successfully employed and who had an occupational status even though currently unemployed, the three part-time workers and the three whose employment was subsidized. Not included are the full-time housewife and one subject whose employment was taken immediately after junior college graduation as a temporary job based on economic necessity and was not in the field in which he was seeking a position. Also not included are the full-time students, or the marginally employable Subjects who were regarded as having no presently definable occupational status.

Table 7 presents a listing of the occupational categories according to the number of Subjects represented in each.

Table 7. OCCUPATIONAL CATEGORIES OF EMPLOYED SUBJECTS

	Male	Female	Total	%
Clerical	12	8	20	33.3
Unskilled	12	2	14	23.3
Professional	7	1	8	13.3
Sales	4	1	5	8.3
Managerial	4	0	4	6.6
Service	2	2	4	6.6
Military	3	0	3	5.0
Craftsmen	2	0	2	3.3
	46	14	60	100%

The greatest number of Subjects - 20 (33.3%) - was employed in clerical occupations; 12 were male and 8 were female. Fourteen or 23.3%, consisting of 12 males and 2 females, were employed in unskilled occupations, many of which required some on-the-job training. Eight (13.3%) - 7 males and one female - were in professions. Five of the group - four males and one female - were in sales occupations, and four - all males - were in managerial positions. Two males and two females were employed in service occupations; three males were in the Military (Army, Navy and Marine Corps) and two males were employed as craftsmen.

Table 8. OCCUPATIONS OF EMPLOYED SUBJECTS

	Number	%
Professional		
Accountant	1	
Commodities Broker	1	
Electronic Technician	1	
Photographer	1	
Research Technician	1	
Teacher - children's music	1	
Teacher - learning disabilities and psychological dianostician (private practice)	1	
Urban planner	1	
	8	13
Managerial		
Executive Secretary - camp for handicapped	1	
Manager food store	1	
Retail manager - sports and toy department	1	
Retail special projects analyst	1	7
	4	
Clerical		
Filling orders (mail order house)	1	
Delivering advertising copy	1	
Jewelry tagger	1	
Key Punch operator	1	
Mail Handler - U.S. Post Office	1	
Messenger	1	
Shipping and receiving	1	
Teacher Aid	1	
Travel Agent	1	
Secretary - Receptionist	1	
File Clerk	3	
Mail Clerk	3	
Stock	4	
	20	33
Sales		
Retail art supplies	1	
Insurance	1	
Direct sales - therapeutic equipment	1	
Manufacturer's representative - advertising	1	

Table 8. OCCUPATIONS OF EMPLOYED SUBJECTS (CONTINUED)

	Number	%
Candy and cookie sales from home	1	
	5	8
Craftsmen, Foremen		
Printer	1	
Electrical apprentice	1	
	2	3
Service Workers		
Assistant cook in boarding school	1	
Short order cook	1	
Maintenance and aid (home for elderly men)	1	
Ski-Patrol	1	
	4	7
Military		
Army	1	
Navy	1	
Marines	1	
	3	6
Unskilled		
City sanitation worker	1	
Machine operator - printing company	1	
Assembly line - pharmaceutical company	1	
Drier - pharmaceutical company	1	
Assembling electrical fixtures	1	
Packaging laundry bags for hospitals	1	
Supermarket maintenance	1	
Supermarket bagger	1	
Ranch and farm	2	
Janitorial	2	
Factory - manual labor	2	
	14	23
Total	60	100%

Marginally Employable Subjects

Table 9 presents data on the Subjects who were judged to be marginally employable.

Table 9. CHARACTERISTICS OF SUBJECTS LISTED AS MARGINALLY EMPLOYABLE

Sex	Adult Age	VIQ	WAIS PIQ	FIQ	Highest Education Completed	WRAT Readg. Grade	Readg. Comp.	Additional Problems in Childhood
F	34	92	80	86	High School program for EMH***	7.7	5.0 (M-S.*)	Emotional Problems - Poor beh. cont.
M	25	95	72	84	High School	9.6	9.8 (N-D.**)	Left Hemiplegia, Emotional Problems
M	24	96	100	99	High School Basic level	11.6	7.0 (N-D.)	Emotional Problems
M	23	82	89	84	Non-graded Special Ed. Schools	4.4	4.5 (M-S.)	Speech, Language Poor beh. cont. Emotional Problems
M	23	71	80	73	2 yrs. High School in EMH and Emotional Disturbed Programs	6.3	4.2 (M-S.)	Emotional Problems

The marginally employable group consisted of four males and one female, ranging in age from 23 to 34. Two had completed high school, either in the regular program or in a basic track. Three

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* Monroe-Sherman - Group Diagnostic Reading Aptitude & Achievement Tests

**Nelson-Denny Reading

***Although her current adult IQ was above the level of students accepted into the EMH program, her childhood IQ on the WISC when she was 10 years 11 months of age justified this placement. (VIQ 80, PIQ 67, FIQ 71).

had attended only special education programs since leaving Cove School. Of these three, one had completed the high school program for the educable mentally handicapped. Another Subject had been in several non-graded programs - residential and day - for children with special problems, mainly learning disability or multiple handicaps, through age 20. He was still attempting to complete night courses leading to high school equivalency certification. One did not complete the high school courses for the mentally handicapped or emotionally disturbed in which he was enrolled, and dropped out at age 16.

Subjects in Sheltered Workshops

Table 10 presents data on the Subjects who were working in sheltered workshops.

Table 10. CHARACTERISTICS OF SUBJECTS IN SHELTERED WORKSHOP

Sex	Adult Age	VIQ	WAIS PIQ	FIQ	Highest Education Completed	WRAT Readg. Grade	Readg. Comp.	Additional Problems in Childhood
M	28	128	99	116	High School Adjusted	16.8	14.1	Aphasia, Emotional Problems Bizarre beh.
M	28	79	52	66	Non-graded Spec. Ed.	8.5	3.2	Cerebral Palsy (Athetoid), Seizures, Emotional Problems
M	25	87	94	90	Non-graded Spec. Ed.	8.7	4.5	Poor Behavior Control Emotional Problems
F	23	83	76	79	High School Program for EMH	5.6	4.2	Vision, Speech, Mild high freq. hearing loss
M	23	-	-	-	High School Program for EHM	-	-	Cerebral Palsy (Rt. hemiplegia) Seizures Emotional Problems

The five former students, four male and one female, who were in sheltered workshops shared several characteristics. All were living with their families and were characterized as being helpful in the home, mannerly and pleasant and needing parental guidance or assistance. Three had multiple physical problems of whom two were handicapped neurologically by cerebral palsy and seizures. One of the two had deteriorated physically and mentally from the time he was in attendance at Cove School (specifically experiencing a progressive increase in seizures) and testing was discontinued. The third male in the group was a nice-looking, well-mannered young man

who found it difficult to hold a job in part because of his lack of social judgment. The fourth male was highly verbal with an excellent academic achievement level and one of the highest tested IQs of those who participated in the study. In his case, because of his overwhelming emotional problems, the workshop provided a highly supportive work environment in which he could function comfortably. He has been involved in on-going psychotherapy for many years. This Subject is now diagnosedas Autistic. The childhood diagnosis was Aphasia and Emotional Problems; bizarre behavior was observed in the classroom. Emotional problems had been identified in childhood in all of the males, and poor impulse and behavior control in one.

In addition to her vision problem, the one female was handicapped by a speech defect which could conceivably limit even further her restricted employment opportunities. Workshop employment was accepted by her and her family as a satisfactory means of experiencing the dignity of employment as well as social protection in an understanding environment.

Excepting the one subject whose WAIS IQ's ranged from Average in Performance to Superior Verbally, the Full Scale ability quotients of the remaining three ranged from Retarded to Borderline to Average. The Verbal quotients of two were in the Dull-Normal Range and one fell just short of the Dull-Normal classification into the Borderline Range. Performance quotients fell into the Retarded, Borderline and Average ranges.

The word reading scores of the three males tested were suprisingly good. In all cases the reading comprehension scores were 2.7 to 5.3 grades lower than reading isolated words out of context. The female had attained a lower reading skill than the males in the group but showed less discrepancy (1.4 grades) between word reading and comprehension.

Subjects in Life-care

Three of the former students in the study population were in life-care institutions. None of these students was interviewed or tested for the study. Two were female and one was male. According to test results obtained during the last years the students were in attendance at Cove, two of them obtained full-scale IQs at the lower limit of the Dull-Normal range. (F.IQ 81) The third, while testing in the Dull-Normal range in performance abilities (P.IQ 82) obtained a verbal IQ in the Educable Retarded range, (V.IQ 69) full-scale IQ Borderline (FIQ 72).

Poor impulse and behavior control were additional problems observed in childhood in the two females. The one male was additionally handicapped by a generalized slowness of speech and awkwardness of movement (possibly on a post-encephalitic basis) and mildly autistic behavior characteristics.

Income Information

Seventy-five subjects came in for interviews (seventy-two participated in the testing) and the information in Table 11 was obtained during those interviews. Forty-nine of the interviewed Subjects were working on a full-time basis or had recently resigned from or lost their last employment. Included therefore are the last salary figures for the two Subjects who resigned their positions to start graduate work, and the two who were currently unemployed.

Table 11. PRESENT OR LAST EARNED INCOME OF FULL-TIME WORKERS INTERVIEWED

	Number		%
Over $15,000	2		4
$13,000 to $13,999	2		4
$12,000 to $12,999	4		9
$11,000 to $12,999	1		3
$10,000 to $10,999	2		4
$ 9,000 to $ 9,999	3		7
$ 8,000 to $ 8,999	4		9
$ 7,000 to $ 7,999	10		22
$ 6,000 to $ 6,999	6		13
$ 5,000 to $ 5,999	7		16
Below $5,000	4		9
		45	100%
Non-salaried (Convent)	1		
Unknown (includes seasonal worker, one in military service, one salesman)	3		
		4	
		49	

The salaries for full-time work ranged from earnings in excess of $15,000 per year to less than $5,000 with a median income of $7,500.

Salary information was not available or pertinent for four of the Subjects. The Subject who was a member of a religious order was issued money as needed but was not salaried. One Subject had just entered the Marine Corps and did not have specific salary information at hand and the seasonal worker and salesman were unable to estimate satisfactorily what their annual earnings would be.

Twenty-six of the 75 Subjects who came in for interviews were still dependent upon their parents or some other source of income. In this group were some of the students, the part-time workers, the housewife, those in workshops or subsidized employment and the Subjects with intermittent employment records who were often unemployed. The breakdown is listed below.

Table 12. SUBJECTS FINANCIALLY DEPENDENT ON PARENTS OR OTHER SOURCE OF INCOME

Students, full-time	8
Student, part-time	1
Working part-time	2
Housewife	1
Workshop and Subsidized	8
Unemployed	6
Total	26
Income from trust	(2)
Soc. Sec. Disability Insurance	(2)

Two female Subjects were the beneficiaries of trusts which had been set up by their families and which provided the major source of their present income. Two male Subjects were receiving Social Security Disability Insurance.

Marital Status

Table 13 indicates the marital status of 82 of the Subjects - 62 males and 20 females. Excluded from this group are the eight Subjects in sheltered workshops and life-care.

Table 13. MARITAL STATUS OF 82 SUBJECTS

	Male	Female	Total	%
Married	14	0	14	17
Divorced	0	2	2	2
			16	19%

Table 14. NUMBER OF YEARS SUBJECTS HAVE BEEN MARRIED

	Less than one	1	2	3	4	5	6	7	8	9	10
14 Male Subjects	3	2	2	1	1	1	3		1		
2 Female Subjects*	1										1

* Number of years married before divorce

Table 15. NUMBER OF CHILDREN OF 16 MARRIED SUBJECTS

Children	Male Subjects	Female Subjects	Total Subjects
0	9	1	10
1	2	0	2
2	2	1	3
3	1	0	1
	14	2	16

One fifth of the Subjects either were or had been married. Fourteen male Subjects (17%) were married at the time of the study, for lengths of time ranging from less than one year to eight years. Five of them had children; two subjects had one child, two had two children, and one had three children. None of the male Subjects had been divorced.

Two of the female Subjects (2%) had been married and both were divorced. In the one instance, the marriage had lasted less than a year and there were no children. In the second instance, the marriage ended after ten years of marriage and two children.

Table 16. LIVING ARRANGEMENTS OF SUBJECTS

	Male	Female	Total	%
With Spouse	14	0	14	15.6
Own Apartment				
Alone	10	5	15	16.7
With roommate(s)	6	2	8	8.9
Near parent	2	1	3	3.3
Other (associated with work)*	1	2	3	3.3
Campus-Dormitory	3	1	4	4.4
	36	11	47	52%
With Parent(s)				
Temporarily (for convenience)	2	4	6	6.7
By choice	10	2	12	13.3
Working toward independence	4	1	5	5.6
By necessity	9	3	12	13.3
Supervised Situation	4	1	5	5.5
Life Care	1	2	3	3.3
	66	24	90	100%

*Some supervision provided by work environment

Living Arrangements

Table 16 presents data on the living arrangements of the Subjects in the study. Table 17, which presents data on the Subjects' work, educational level and occupational status in relation to living arrangements, high-lights some of the pertinent relationships.

As shown in Table 16, forty-seven Subjects were already living away from their parents and six, although living at home, expressed the expectation that relatively soon they would be moving out on their own. Therefore, these Subjects (59%) including the four college students who were living away from home and the 6 Subjects living at home temporarily had attained a level of economic, practical and/or emotional independence from their parents which resulted in living away from the parental home as a natural outcome.

The 14 married Subjects were living with the spouse. The majority of them were working full time (Table 17); although one was employed part-time in the U.S. Postal Service while continuing to look for full time work, and one had lost the managerial job he had held for over five years. One had returned to graduate school to study anthropology after a period of successful employment as a salesman. Six of the group were college graduates and four had completed regular high school programs. Three had completed high school programs which allowed for some adjustment to the student's learning disability, either by permitting course choices from a wide range of general studies and/or by providing assistance from specialized teaching staff in small groups or individually. One who had dropped out of high school was nevertheless successfully employed in a managerial capacity. Occupational levels of the group ranged from professional to unskilled.

The second group of 29 Subjects living independently (Table 17), either alone (15), with roommates (8), near parents (3) or in connection with their work (3) seemed little different in employment, educational level or occupational status from the married Subjects. Most of the Subjects (23) were working full time in occupations represented mainly by professional (7), clerical (6) and unskilled (5) job classifications. Managerial, sales, service and housewife occupations were also represented in smaller numbers. Two of the group worked only intermittently and one was employed full time in a clerical job which was partly subsidized. Three were students, eleven were college graduates, two had completed junior college, one had completed a technical course, and two had graduated regular high school. A somewhat greater number (8) than in the married group had completed an adjusted high school program for students with learning difficulties. Two had found high school, even with some adjustments, discouragingly difficult because of persisting, severe reading difficulties and had dropped out. Two had attended high school programs for the Educable Mentally Handicapped.

The living arrangements of three Subjects were closely related to their work (Table 16). One unmarried male Subject was in the Navy and living at the Naval Base or on ship. His career service represented the realization of an ambition which he had held since childhood. One female Subject who was severely handicapped visually by congenital cataracts resulting from Retrolental Fibroplasia had found a career in music in the

church. She was now a member of an Episcopalian religious order within which she taught children's music. The third was living in her own apartment on the campus of a treatment center for emotionally disturbed children where she works.

Three Subjects were living alone but geographically close to their parents either in the same building or near-by (Table 16). The latter arrangement made it possible for these Subjects to visit frequently with their parents and to consult easily on any matters which might arise, at the same time assuming responsibility for their own apartments and making daily decisions independently. For two of the Subjects this was a practical necessity. One was significantly handicapped by congenital aphasia and a hearing loss, recently complicated by developing vision problems. The other - a female - was conflicted by her own need to establish her independence from her mother with whom her relationship had been poor and the recognition of her continuing need for some guidance particularly in money management which her father could supply effectively.

The 11 Subjects who were still students lived in situations which were comparable to any student living arrangements. The three graduate students were living alone, with roommates, or with a spouse. Four of the undergraduate students were living in dormitories and one lived in a student co-op. Three were attending colleges within commuting distance of their homes and consequently were still living at home. One workshop trainee was living in a dormitory which was associated with the workshop which she attended and one was living at home.

The 35 Subjects who were living at home (Table 16, 17) constituted a group spanning a wide spectrum of ages, educational levels, economic independence, physical competence and personality. An effort was made to separate this group into several subgroups which might reflect differing degrees of competence and emotional independence. Four subgroups emerged from this larger group.

1. The six Subjects who were living at home as a matter of temporary convenience differed little, if at all, from the Subjects described above (Table 17). Five had lived on their own either as students or while working and were now looking for work, having completed their formal education, or were in the process of changing jobs (in one case from one city to another). The sixth was nearing the end of his college education as a commuter student and anticipated establishing himself on his own as soon as his education was completed.

2. A second subgroup of 12 Subjects was designated as living at home by choice (Table 17). One Subject - a college graduate - was quite handicapped physically by spastic cerebral palsy. However, he was entirely independent in his work at a managerial level and in making decisions affecting his own life. In his case, an apartment in his parents' home had been adapted to his specific needs. The remaining 11 Subjects did not manifest any obvious problems which would have made assuming the responsibility for living on their own impossible or inadvisable. Nine were employed in full time occupations which were mainly clerical (6) with the exception of one who was an electrician's apprentice and one

who was in a service occupation in a home for aged men. One had completed junior college and had taken a temporary job while looking for full-time employment. One was unemployed and one was still a student. The educational levels encompassed college graduates (2), junior college graduate (1), technical training (2), regular high school (2), high school EMH programs (4), and the above mentioned college student.

A common quality among many of the members of this group was a tendency to be involved in fewer group social activities and to have fewer friends than reported by the Subjects living away from home. Some tended to confine their social relationships to work and the family circle and indicated little need for additional social contact. Others perceived themselves as shy and socially isolated outside their contacts at work and within the family; they expressed wishes for more friends but were not able to take positive steps toward developing new relationships. Several who were more outgoing and gregarious reported experiences which suggested some difficulty in establishing satisfying peer relationships, yet they continued to persist in these efforts by joining groups, dating, etc. Some of the younger members of this group kept in touch with school friends with whom they socialized. The Subjects in this group as a whole, regardless of social contacts outside the home, apparently were continuing a life-style established in growing up which offered the companionship of parents and siblings, emotional warmth of the family, physical comfort and security, and were deferring for various unexplored reasons establishing themselves entirely on their own.

3. A small group of five Subjects who were living at home seemed to fit best into a group which could be designated as working toward greater independence. All five, when they were interviewed expressed wishes for greater independence. Three had had psychotherapy as adolescents and adults and periodically, as they felt the need, would renew their contact with the therapist. These three had completed either a regular high school (2) or a high school program with some adjustments (1) and all were working at full time clerical (1) or unskilled (2) jobs (Table 17). Their emotional problems were seen as the limiting factors to more independent living. Economic realities for the one female in this group who was employed as a short order cook on a part-time basis made living on her own financially impractical. The fifth Subject in the group was still in a workshop training program where part of the thrust was to develop independence.

4. Twelve Subjects continued to live with their parents out of necessity (Table 17). These consisted of two of the five Subjects who were judged to be marginally employable, one college student and nine others. Detailed information on the four workshop and two marginally employable Subjects has been presented earlier. The college student was a female whose practical judgment was highly unreliable despite her ability to achieve academically and whose emotional and social development was much below the level expected of a young adult. Of the remaining nine, four were employed in full time clerical (2) or unskilled (2) jobs. The fifth Subject was physically and visually handicapped by slowly developing neural tumors and conducted a small cookie and candy business out of his home. Three of the five who were employed had completed High School EMH programs,

one had attended a residential school which adjusted its curriculum to slow learners (Dull-Normal intellectual level), and the visually-handicapped subject had attended a general special education program for multipally handicapped children. Two Subjects were unemployed.

As a whole this group contained a number of individuals with physical problems (motor, speech, vision, hearing and visual-motor coordination) which could be compensated for only to a limited degree, largely because of somewhat lower intellectual abilities, and which would have made living alone very stressful if not impossible. With the exception of the one college student the formal educational level was lower than that attained by any of the other groups, as all but one of the group had attended either very specialized programs (three of them in residential settings) designed for children with multi-dimensional learning and adjustment problems, or EMH programs in their local high schools. Many of these Subjects also gave evidence of continuing need of parental assistance in making judgments and decisions. Despite their multiple problems, however, all but two in this group dependably fulfilled their commitments to their jobs, either as members of the general work force or in sheltered workshops or, in the case of the student, to her studies. It was possible to project that in time several members of this group could live comfortably in a supervised situation such as the group home which served the needs of two Subjects which will be described next. For others, their own family or a surrogate family would remain as a permanent need, and some arrangement such as the ones described below would probably need to be made.

The parents of four other Subjects had made arrangements which provided supervision, yet permitted the individual to live away from home (Table 17). Two Subjects were living in group homes supervised by a social worker who actively involved the members in planning the details involved in the smooth running of the home. One Subject was living with the farm family for whom he worked; the family in turn provided guidance and supervision and a kind of family environment. The fourth Subject was one who lives in a rooming house in the town where the workshop he attends is located. The landlady provides some supervision, a social worker guides him in handling his affairs and he meets regularly with his psychotherapist. Since the family lives in a nearby town he visits them frequently on weekends and feels that he has achieved some measure of independence.

One female Subject who attended a workshop for training in working with the deaf was living in a dormitory associated with the workshop. This was a temporary arrangement which would terminate with the completion of her training which it was expected would lead to at least partial independence.

Table 17. LIVING ARRANGEMENTS COMPARED TO EMPLOYMENT, EDUCATIONAL LEVEL, AND OCCUPATIONAL STATUS

	LIVING INDEPENDENTLY			LIVING WITH PARENTS				INDEPENDENTLY BUT SUPERVISED
	With Spouse	Alone, Roommate, Near parent Other	Dorm-Campus	Tempo-rarily	By Choice	Working Toward Indepen-dence	Necessity	
EMPLOYMENT								
Full-time	11	23		2	9	2	4	2
Part-time	1				1	2		
Unemployed	1	2		3	1		2	
Student	1	3	4	1	1		1	
Workshop Trainee						1		1
Subsidized		1					1	1
Sheltered Workshop							4	1
Totals	14	29	4	6	12	5	12	5
EDUCATIONAL LEVEL								
Masters		4 (1)*						
College	6 (1)*	7 (1)*		1	2			
2 years College		2		1	1			
Technical Trade		1		2	2			
High School	4	2		1	2	2		
High School-Adj.	3	8				2	1	1
Dropped High School	1	2						1
EMH		2			4	1	6	2
Spec. Ed. (Multiple)							4	1
College Undergrad.		1	4	1	1		1	
*() Graduate Student								
Totals	14	29	4	6	12	5	12	5
OCCUPATIONAL STATUS								
Professional	1	7						
Managerial	2	1			1			
Sales	1	1		2			1	
Craftsman	1				1			
Clerical	3	6		1	6	1	2	1
Service		2			1	1		
Unskilled	3	5				2	2	2
Housewife		1						
Student	1	3	4	1	1		1	
Military	2	1						
None		2		2	2	1	6	2
Totals	14	29	4	6	12	5	12	5

Educational History Prior to Cove Enrollment

Tables 18 and 19 present data on the educational history of the Subjects prior to their enrollment at Cove School.

Table 18. Entry into formal school	Number	%
Entered Kindergarten on time, repeated no grades	26	28.6
Entered Kindergarten on time, repeated one grade	37	40.7
Entered Kindergarten one year late	8	8.7
Enrolled in Kindergarten and withdrawn	9	9.9
Did not attend Kindergarten	6	6.6
Tutored at home	1	1.1
Kindergarten in special school	4	4.4
	91	100%

Twenty-six children, or about one-fourth of the population, entered Kindergarten at the usual age and thereafter either transferred to Cove or progressed one grade per year until the learning problems became so frustrating that the child was withdrawn and entered Cove. For another 37 (40%) who also entered Kindergarten at the usual age, a solution was initially sought for the learning problem in having the child repeat a grade. This obviously did not correct the problems as the child continued to experience difficulties of sufficient degree eventually to require placement outside the regular school.

A small number of children (8) entered Kindergarten a year later than the customary age of five. The parents, themselves, were aware of some developmental problem, often seen as immaturity, or its presence had been confirmed by a professional and it was felt best to give the child an additional year at home in which to mature before beginning a formal school experience.

The early school experience of the children in the above groups, approximately three-fourths of the study population, was judged to have been at least partially satisfactory, inasmuch as the school continued to work with the child, maintaining him through the Kindergarten year and in most cases even longer. With few exceptions, the problems of these children appeared to be relatively mild as to behavior problems and mild to moderate

insofar as learning problems were concerned. The fact that so many children could have a Kindergarten experience with non-handicapped children may also be a commentary on the flexibility of the Kindergarten curriculum and the sensitivity of the Kindergarten teachers.

The problems of approximately one-fourth of the group were more obvious, however. These children either had no Kindergarten experience at all, or they attended classes with other atypical children, or they made an unsatisfactory attempt to adjust to Kindergarten. Nine children were enrolled for a few weeks and then were withdrawn at the school's request. Seven children did not attend Kindergarten but came directly to Cove School after a nursery school experience, home tutoring, or a temporary stay in their local school. The early school experience of one was in a residential school for retarded children. Two others had the equivalent of a Kindergarten year in a special school for emotionally disturbed children, and one cerebral-palsied child attended Kindergarten with physically handicapped children.

In more than half (9) of the instances of withdrawal from Kindergarten or non-attendance, the most obvious problem was hyperactivity of such a degree that it could not be tolerated within the group. The other children who did not attend Kindergarten, while not severely hyperactive, were nonetheless so atypical in their development or socially so immature, that it was felt that they might be unable to adapt to the social and behavioral expectations of their age group and would require more than the usual amount of supervision and intervention by the teachers.

Table 19. TYPES OF SCHOOLS ATTENDED AT TIME OF TRANSFER TO COVE

	Number	%
Regular non-specialized education		
Regular public school	61	67.0
Regular parochial school	9	9.9
Regular private day school	5	5.5
	75	82.4
Special Education		
Public school special class	2	2.2
Orthopedic (1)		
Sight-saving (1)		
Special private day school	5	5.5
Emotionally disturbed (4)		
Learning disabilities (1)		
Special residential school	2	2.2
	9	9.9
No Formal School Experience, or very brief	7	7.7
No school (5)		
Regular public school, one month (1)		
EMH, one month (1)		
TOTAL	91	100%

By far the greatest number of Subjects (82%) was in attendance at regular schools, either public, parochial or private at the time of their transfer to Cove. Nine children (9.9%) had already been enrolled in some type of special program. Two children attended special classes within the public school. One student with rather severe spastic cerebral palsy was in

attendance in an orthopedic class; another whose visual-motor difficulties were quite marked, was placed in a class for children with vision problems until a more appropriate place could be found. The parents of five children had solved the problem of educating their child by finding special private day schools. In four cases, the child's unusual or bizarre behavior or management problems were such that a school for emotionally disturbed children was selected. In the other instance, the child attended a newly organized class for children with learning disabilities and transferred to Cove when he reached the age limit for the class. Two children were placed in residential schools for retarded children because of severe behavior disorders.

Seven children (7.7%)were not in attendance in school or were placed for a short period of time in a public school class while the parents made arrangements for their transfer to Cove.

Data regarding the age at enrollment and dismissal, and length of enrollment at Cove are given in Table 3.

Educational History After Cove Enrollment

Careful planning preceded the child's dismissal from Cove and re-entry into another school situation; this may have involved the recommendation of a school, often the choice of a particular class or teacher within the public school, and, if such resources were available, the alerting of the school social worker or psychologist to the child's particular problems and needs. In other instances where it was felt that the child could benefit from psychotherapy or counseling during this transition, the recommendation was made for such help outside the framework of the school.

The major kinds of school settings to which children returned from Cove are shown in Table 20. With the exception of one, all those who returned to graded school situations, including the students who entered programs for the Educable Mentally Handicapped, re-entered at the elementary, or Junior High School* levels. The one exception was a student who entered Cove at 11 years, 8 months and who completed his Junior High School experience on a half-day basis; upon his dismissal from Cove at 15 years 5 months, he went directly to his local high school.

Table 20. TYPES OF ELEMENTARY OR JUNIOR HIGH PROGRAMS ENTERED BY SUBJECTS ON LEAVING COVE

	Number	%
Regular graded school - no special help	49	53.8
Regular residential school - no special help	4	4.4
Regular graded school - some special help	2	2.2
	55	60.4
Special education in regular graded school		
Self-contained class, special education	9	9.9
Class for Educable Mentally Handicapped	12	13.2
Special education in special school		
Private special education day school	4	4.4
Private special education residential school	11	12.1
	36	39.6
TOTAL	91	100%

* During the years in question, Junior High School in the Chicago Suburban area included Grades 7 and 8 in a separate middle school.

More than half of the students (58%) leaving Cove returned to regular graded schools - public, private or parochial - which had no special resources for children with learning disabilities, and consequently, the kind of planning mentioned above was of particular significance. Only two returned to public schools which at that time provided help for learning disabilities to students enrolled in regular graded classes.

Nine students with more obvious problems in hearing, learning, or multiple handicaps returned to self-contained classes for children similarly categorized, and 12 (13%) returned to classes for the Educable Mentally Handicapped.

Four students returned to private special education day schools and 11 (12%) to specialized residential schools.

Table 21. AGE-GRADE RELATIONSHIP AT RETURN TO GRADED SCHOOL

	Number	%
At age expectancy	11	20
One year below age-grade expectancy	35	64
Two years below age-grade expectancy	7	13
Grade level not identified	2	3
	55	100%

Eleven of the 55 Subjects who returned to regular graded schools returned at the grade level expected for their age. Approximately two-thirds (64%) returned at a grade level one year below that in which a child of a given age would ordinarily be placed. This was usually interpreted to the child as necessary because of transferring from a small specialized school to a large regular school, or as a way of allowing him to keep up with the work more easily in view of his past learning problems. In only seven instances was the child placed two years below the level expected for his age. The grade level of two children who returned to residential schools was not stated as the schools were organized on a non-graded age-group basis.

The large majority of the Subjects - 44 of the 55 (80%) - who made the transition to regular classes in graded schools continued to progress in that school until the move to high school was made. A similar pattern was seen among the remaining 36 Subjects who entered special education classes; 27 of these Subjects (75%) remained in the class placement originally selected as appropriate for them.

Twenty Subjects (22%) however, had a second elementary or junior high school experience. For six subjects, the move consisted of a change from one private or public school to another one, but still within the traditional graded educational system. This was considered a lateral move made on the basis of such factors as family preferences, curriculum differences, etc., not necessarily related to the learning disability. Five Subjects moved from what seemed to be less demanding programs which allowed for much individualization and relaxed requirements (special class or school) to ones which imposed greater demands in terms of achievement or class size (regular public or private school or another level of special class). Possible hypotheses for these moves may be that the Subject, his teachers or his parents felt that he was strong enough academically and emotionally to deal with a more demanding program or that the original placement was incorrect.

For nine Subjects, the original placement after Cove attendance clearly proved unsatisfactory and a move to a setting providing more individualized attention was necessary. In most instances (6), it was a regular school situation which proved to be too demanding and the Subject transferred to a small private day or residential school (3), to an EMH class (1) or to schools for emotionally disturbed children (2). Three Subjects moved from one special education placement to another which seemed to offer a more appropriate program. The latter were Subjects whose learning problems were compounded by numerous other neurological, emotional or behavioral difficulties. Table 22 gives a detailed view of the range and variety of programs entered by Subjects leaving Cove and where the shifts to other programs occurred.

TABLE 22. ELEMENTARY AND JUNIOR HIGH PROGRAMS ENTERED BY STUDENTS LEAVING COVE AND SHIFTS

	Entered		Remained		Move Lateral	More Demand.	Less Demand.
Reg. Graded School - no special help							
Public school, regular class	32		26		1*	0	5
Private school, regular class	14		11		2	0	1*
Parochial school, regular class	2		2				
Residential school, regular program	4		2		1	1	0
Public high school, basic level	1		1				
		53		42			
Reg. Graded School - some special help							
Public school, reg. class with LD assistance		2		2			
Reg. Graded School - Self-contained class: Sp.Ed.							
Hearing impaired	2		2				
Learning problems	4		1		1*	1	1
Multiple handicaps	3		3				
		9		6			
Reg. Graded School - EMH class		12		10	1*	1	0
Private Special Day School							
Learning disabilities	2		1		0	1	0
Emotionally disturbed	2		2				
		4		3			
Specialized Residential School							
Program for slow-learners	2		2				
Learning disabilities	5		3		0	0	2**
Speech problems	1		1				
Emotionally disturbed	1		0			1	
Mentally handicapped	2		2				
		11		8			
TOTAL		91		71	6	5	9

*Moved to less demand. for 3rd Jr.HS
**Moved to more demand. for 3rd Jr.HS

Eighty-four (84) of the 91 former students progressed into a high school program. Seven had no high school attendance. One Subject whose severe reading and spelling deficiencies continued to exist even after many years of intensive remedial efforts left school at eighth grade, two who had multiple physical coordination and intellectual problems remained in a special class at the junior high school level until age 18, one remained in a residential special school until he reached dismissal age, and two were in life-care institutional settings. Table 23.shows the types of high school programs originally enrolled in by these 84 students.

Table 23. TYPE OF FIRST HIGH SCHOOL ATTENDED BY 84 SUBJECTS

	Number	%
Regular Graded School		
Regular graded high school - no special help	36	43
Regular residential high school - no special help	9	11
Regular graded high school - some special help Learning Disabilities (6) Other (3)	9 54	11 65%
Special Education in Graded School		
Regular graded high school - EMH program	15	18
Special Education in Special School		
Private day special education high school	1	1
Private residential special education high school	11 27	13 35%
Other (See Table 24)	3	3
TOTAL	84	100%

Almost two-thirds - 54 or 65% - of the Subjects who entered high school enrolled first in a regular high school with no special assistance, other than the grouping into levels such as a basic or essentials track, or with modest amounts of special help for the learning disability or adjustments for other handicaps such as hearing or orthopedic problems.

Twenty-seven (35%) required comprehensive special education services at some point during their high school attendance. Fifteen (18%) entered public school programs for the educable mentally handicapped, and 12 (14%) attended private day or residential high schools for children with problems identified as slow-learning, learning disability, or emotional disturbances. Three attended other types of programs, namely correspondence school, residential technical high school, and adult night high school.

Table 24 lists the specific kinds of high school programs entered by the Subjects and the shifts that were made. Shifts to other high school programs were of three kinds: lateral, to a more demanding program, and to a less demanding or more individualized program. Lateral shifts were made only by Subjects in regular high school programs. Shifts to more demanding or less demanding programs were made by students in regular high school programs as well as in special education. In all, 21 (25%) of the 84 students who entered high school changed to another high school or to a different program within the same high school. In four instances the move was a lateral one from one regular program to another. These moves were judged to reflect changed attitudes or circumstances, such as moving from a residential to day programs or vice versa, or from private to parochial schools.

Seven Subjects moved from their original high school placement to programs which imposed greater demands. Three who were receiving help for the learning disability or were enrolled in a basic track moved to a higher level track or discontinued receiving special help. Four who were in a very specialized high school setting for children with learning disabilities or emotional problems moved to regular programs in public or private schools or into public school programs offering some special help.

Ten Subjects - five in regular programs and five in specialized programs found their original high school placement so demanding or so uncomfortable that a change had to be made. Two dropped out of their regular or basic high school programs (one later completed high school in military service). Three moved from regular graded programs which offered little or no special help to private schools with very individualized programs. However, despite such efforts the difficulties experienced by these Subjects were apparently symptomatic of continuing academic, emotional or motivational difficulties as two dropped out of high school entirely, and one completed his high school education only after still another move to a school with a very individualized curriculum.

Problems were also encountered by the five Subjects in special education high school facilities. One dropped out of the public school EMH program. Two found the EMH program within the regular high school setting so difficult socially and emotionally that they transferred to residential settings for students with emotional or multiple problems. Both later dropped out of school entirely. One transferred to a residential setting for students with

Table 24. TYPES OF HIGH SCHOOL PROGRAMS FIRST ATTENDED AND SHIFTS

	Entered		Remained		Move Lateral	More Demand.	Less Demand.	Dropped Out
Reg. Graded High School								
Public high school, reg. program	19		17				2*[1]	
Public high school, basic program	16		12		1	1	1*	1
Private high school, regular program	1		0		1			
Parochial high school, reg. program	1		1					
Private residential high school, reg. program	6		3		2			1
Parochial residential high school, reg. prog.	2		2					
		45		35				
Reg. Graded High School - some special help								
Public high school, reg. program plus LD	1		1					
Public high school, basic program plus LD	5		4			1		
Public high school, special education services	3		2			1		
Hearing impaired (1)		9		7				
Orthopedic (1)								
Adjustment problems (1)								
Reg. Graded High School - EMH program	15		12				2*	1
				12				
Private Day Special Education High School	1		0			1		
Learning disabilities (1)								
Residential High School - Special Education	11							
Slow learner program (3)			3					
Learning disability high school (5)			3			1	1[1]	
Emotionally disturbed (3)			0			2	1	
		27		6				
Other								
Correspondence (1)								
Adult night high school (1)								
Residential technical trade training (1)		3	3					
				3				
TOTAL		84		63	4	7	7	3

*Later dropped out

[1] Later moved to more demanding program

emotional problems. One who transferred from a residential school for children with emotional problems to a public school EMH program later completed high school in the basic track.

The high school experience was not always an easy one for the Subjects in regular programs. Those Subjects who lived in the Chicago North Suburban area attended their district public high school where the curriculum offering, academic standards and expectations were geared to preparation of the college bound students who comprised at least 85% of the schools' populations. In the interview many Subjects reported having worked hard, getting parent assistance in some areas and having had tutoring for certain courses such as algebra. Some students took longer than the usual 12 years to complete their education, either because of enrolling late, repeating a grade or taking more than four years to complete high school. Despite the effort entailed, however, nearly all reported that they had never seriously considered the option of dropping out of high school. Over two-thirds (70%) graduated from high school and 13% received certificates from the EMH programs. Thirteen Subjects (15%) either dropped out of school or never attended high school. Nearly one-third (30%) completed high school at the average age of 17 or 18. Half (53%) graduated from high school at age 19. Thirteen Subjects, approximately 17% graduated at age 20 or above. Table 25a shows the age at which the students completed high school and Table 25b briefly summarizes the high school level achievements of the entire study population.

Table 25 a. AGE AT COMPLETION OF HIGH SCHOOL

Chronological Age	Number	%
17	3	3.9
18	20	26.0
19	41	53.2
20	10	13.0
21	1	1.3
22	1	1.3
Adult	1	1.3
TOTAL	77	100%

Table 25 b. HIGH SCHOOL ACHIEVEMENT

	Number	%
Graduated high school Regular program (48) Adjusted program (15) Correspondence school (1)	64	70
Certificate from program for deaf	1	1
Certificate from EMH program	12	13
High school not yet complete	1	1
Dropped out of high school	6	7
No high school attendance	7	8
TOTAL	91	100%

Forty-four (44) Subjects (47% of the entire study population and 67% of the Subjects who completed a regular or adjusted high school) program entered college. Twenty-four of the Subjects (25% of the entire study population and 36% of the high school population) had graduated college at the time of the interviews and 12 Subjects were still students (one part-time). Eight Subjects (18% of the number who entered college) did not complete college. Table 26 shows the college level standing of the Subjects.

Table 26. LEVEL OF HIGHER EDUCATION ATTAINED

	Highest Level Completed			Highest Level in Progress			Combined		
	No. of Ss.	% Tot. Study Group (N=91)	% High School Grad. (N=64)	No. of Ss.	% Tot. Study Group (N=91)	% High School Grad (N=64)	Tot. No. of Ss.	% Tot. Study Group	% High School Grad.
Junior College	4	4	6	0	0	0	4	4	6
College	16	17.6	25	9	9.9	14	25	27.5	39
Grad.School Master's	4	4.4	6	2	2.2	3	6	6.6	9
Grad.School PhD	0	0	0	1	1.1	2	1	1.1	2
	24	26%	38%	12	13.2%	19%	36	40%	56%
Entered, did not Complete							8	8.	13
							44	48%	69%

A wide variety of areas of major study is represented among the college graduates, such as accounting, engineering, biology, education, economics, history, public relations, music, fine arts. Master's degrees were obtained in biochemistry, urban studies, library science and education; the two in progress are in recreational therapy and anthropology.

Approximately half of the students did their college work at two universities. The pattern of enrollment and transfer suggested that they began their college work modestly - starting out at a local community college in some instances or a two year college, then transferring to a state university or a larger private university as they gained confidence in their ability to handle more challenging work and deal with the technicalities of the system of higher education. This kind of progression may also be indicative of practical counseling which matched the student's motivation, maturity and skills to the realistic demands of the college enviroment.

Among the eight Subjects who did not continue their college work were two females who chose to transfer to other areas (one to a secretarial school and one to art school) and one unfortunately who was killed in a traffic accident in her sophomore year. The remaining five felt that their academic skills, abilities or willingness to commit themselves to the rigorous demands of college study were such that they chose not to continue.

Nine Subjects (10% of the study population) successfully completed technical training or trade school courses in which skills were developed which led directly to related employment. These were art school, electrician (apprentice), institution cook, key punch operator, printer, secretarial school, travel agent and machine operator.

ANALYSIS OF IQ AND ACHIEVEMENT TEST RESULTS

Intelligence test results of Subjects who had both WISC and WAIS measures were analyzed to provide a comparison of the Subjects' level in relation to there population norm as children (WISC) and adults (WAIS). Verbal, Performance and Full Scale scores were compared. The percentages of Subjects in each of the seven IQ ranges (Wechsler) as children and as adults were computed.

Achievement test results were analyzed for the adult test group as a whole.

The discrepancy between Verbal and Performance scores was hypothesized to be related to ease of acquisition of different academic skills, namely, reading, spelling and arithmetic. Clinicians have long recognized that large discrepancies among test scores, particularly between the Verbal and Performance scales of the Wechsler intelligence tests are significant. Wechsler (1974) states "...a difference of 15 points or more is important and calls for further investigation." Even greater discrepancies occur in the test patterns of children with learning problems.

Persons working with students with learning disabilities have noted frequently that those students with discrepancies in favor of the Verbal IQ seemed to learn to read without extraordinary difficulty but had much difficulty with numerical and spatial concepts. Jastak, et. al. (1965) observed that in most cases of reading disability, the Performance quotients are higher than the Full Scale Wechsler IQ or the Stanford-Binet IQ. The relationship between discrepancy test scores and academic achievement was analyzed. In addition, the constancy of discrepancy test patterns present from childhood to adulthood was studied.

Eighty-eight (88) Subjects (96.7%) of the total study group had been given the Wechsler Intelligence Scale for Children (WISC) while in attendance at Cove School or as part of the diagnostic procedure just prior to enrollment. At follow up 72 subjects (79% of the total study group) were administered the Wechsler Adult Intelligence Scale (WAIS). Sub-test results were not available for those Subjects who had been tested before being enrolled. Table 27 indicates group means and standard deviations for WISC and WAIS scores. The mean IQ's are all within the normal range, although the mean IQ for Performance and Full Scale WISC fall within the Dull-Normal range. The WAIS mean scores were higher for all full and sub-test scores than the WISC relative to the standardization population mean (100.0 for full-scale scores, 10.0 for sub-test scores).

Table 27. RESULTS OF WECHSLER INTELLIGENCE TESTS
WISC ADMINISTERED TO SUBJECTS WHILE STUDENTS AT COVE AND WAIS ADMINISTERED AT FOLLOW-UP.

TEST MEASURE	Mean IQ WISC	S.D.	No. of Ss	Mean IQ WAIS	S.D.	No. of Ss
Test Scales						
Verbal	91	12.7	88	102	16.7	72
Performance	87	18.1	88	93	19.2	72
Full	88	13.6	88	98	16.5	72
Sub-Tests	Mean Scaled Score	S.D.	No. of Ss	Mean Scaled Score	S.D.	No. of Ss
Information	8.7	2.8	81	10.7	3.7	72
Comprehension	8.6	3.0	81	11.2	3.7	72
Arithmetic	7.3	2.8	81	9.0	3.6	72
Similarities	9.1	3.0	81	11.6	3.0	72
Vocabulary	10.1	2.8	80	11.2	3.2	72
Digit Span	7.6	2.3	81	8.7	3.5	72
Picture Completion	8.2	3.2	81	9.5	3.0	72
Picture Arrangement	8.0	3.3	80	8.8	3.4	72
Block Design	9.0	3.3	80	9.1	3.5	72
Object Assembly	8.4	3.3	80	9.1	3.8	72
Coding/Digit Symbol	6.9	2.7	80	8.1	3.3	72

n of 88 = 97% of study population

n of 81 = 89% of study population

n of 80 = 88% of study population

n of 72 = 79% of study population

Tables 28a, 28b, and 28c indicate the percentage of Subjects in each IQ range of the WISC and WAIS for the three test scales. A higher percentage of the adult sub-group taking the WAIS appeared in the upper two IQ ranges (120-129, 130 and above) for all three scales. At the same time fewer Subjects scored in the two lower IQ ranges (70-79, 69 and under) on the adult test. Also reported are the WAIS scores for the 64 Subjects (89% of the population reporting WAIS scores) whose full scale IQ was greater than or equal to 80 (Table 29).

Table 28a. VERBAL SCALE IQ

	WISC		WAIS	
SCORING RANGE	NO. OF Ss (n=88)*	% IN SCORING RANGE	NO. OF Ss (n=72)**	% IN SCORING RANGE
130 and above	0	0	3	4
120 - 129	0	0	10	14
110 - 119	11	12	14	19
90 - 109	36	41	27	38
80 - 89	27	31	12	17
70 - 79	12	14	6	8
69 and under	2	2	0	0
TOTAL	88	100.0%	72	100.0%

*(97% of total study population)

**(79% of total study population)

Table 28b. PERFORMANCE SCALE IQ

SCORING RANGE	WISC NO. OF Ss (n=88) *	WISC % IN SCORING RANGE	WAIS NO. OF Ss (n=72) **	WAIS % IN SCORING RANGE
130 and above	1	1	2	3
120 - 129	2	2	4	5
110 - 119	7	8	10	14
90 - 109	28	32	22	31
80 - 89	18	20	19	26
70 - 79	19	22	9	12
69 and under	13	15	6	8
TOTAL	88	100.0%	72	100.0%

*(97% of total study population)

**(79% of total study population)

Table 28c. FULL-SCALE IQ

SCORING RANGE	WISC NO. OF Ss (n=88)*	WISC % IN SCORING RANGE	WAIS NO. OF Ss (n=72)**	WAIS % IN SCORING RANGE
130 and above	0	0	3	4
120 - 129	1	1	4	6
110 - 119	5	6	10	14
90 - 109	30	34	31	43
80 - 89	25	28	16	22
70 - 79	24	27	5	7
69 and under	3	3	3	4
TOTAL	88	100.0%	72	100.0%

*(97% of total study population)
**(79% of total study population)

Table 29. MEAN WAIS SCORES FOR THOSE SUBJECTS SCORING 80 OR HIGHER ON FULL-SCALE IQ (n=64)*

WAIS TEST MEASURE	MEAN	S.D.	NO. OF CASES
Verbal IQ	105	15.4	64
Performance IQ	97	16.8	64
Full-Scale IQ	101	14.1	64

*(89% of Subjects reporting WAIS scores)

A Pearson Product-Moment Correlation was used to determine the constancy of IQ over the period from child to adult for those Subjects who took both the WISC and WAIS. Ages at WISC testing varied but were always between eight and 13; Ages at WAIS testing ranged from 21 to 34. This sub-group totalled 69* Subjects (76% of the total study population). High correlations were found between all matching Verbal, Performance and Full Scale scores and sub-test measures ($P < .01$), indicating a constancy of the Wechsler scales over time for this group.

*Three Subjects had been given the Terman-Merrill Binet as children and had no WISC scores.

Table 30. PEARSON PRODUCT-MOMENT CORRELATIONS OF WISC AND WAIS SCORES FOR 69 SUBJECTS REPORTING BOTH SCORES

TEST	NO. OF Ss	CORRELATION CO-EFFICIENT	P
WISC AND WAIS Scales			
Verbal	69*	.75	<.01
Performance	69	.86	<.01
Full	69	.84	<.01
SUB-TEST SCORES			
Information	63	.59	<.01
Comprehension	63	.46	<.01
Arithmetic	63	.64	<.01
Similarities	63	.49	<.01
Vocabulary	63	.71	<.01
Digit Span	63	.65	<.01
Picture Completion	63	.56	<.01
Picture Arrangement	63	.62	<.01
Block Design	63	.82	<.01
Object Assembly	63	.65	<.01
Coding/Digit Symbol	63	.68	<.01

*(76% of total study population)

Table 31 shows the results of a matched t test analysis of WISC and WAIS means on the three scales for the sub-group reporting both scores. Though significant levels were found ($P < .01$), the increase in IQ can be variously interpreted. The WISC and WAIS, though highly correlated, are not identical tests. Another explanation is offered by Bryan (1975) who suggests that an individual's improved performance on an intelligence test may reflect accrued academic skill and knowledge acquired as he grows older rather than an increase in intellectual ability. There is also the statistical explanation of regression toward the mean. Nevertheless, there was improvement in IQ scores relative to the population norms for the two tests.

Table 31. COMPARISON OF MEAN SCORES ON WISC AND WAIS FOR 69 SUBJECTS REPORTING BOTH SCORES BASED ON MATCHED t-TEST

TEST MEASURE	WISC MEAN IQ	S.D.	WAIS MEAN IQ	S.D.	N	T	P
Verbal scale	92	12.4	101	16.1	69*	7.42	<.001
Performance scale	87	18.7	93	18.9	69	4.42	<.001
Full scale	89	14.0	97	16.2	69	8.15	<.001

*76% of total study population

The results of achievement testing administered at follow-up are shown in tables 32a, 32b, and 32c. Group means are presented for both standard and grade scores for all tests. The largest sub-group was that reporting scores on the Wide Range Achievement Test (all subjects tested at follow-up or 79% of the total study group.) Reading was shown to be the area of greatest academic competence for the adult group. Arithmetic was clearly the poorest. The Nelson-Denny Reading Test was administered as a test of reading vocabulary and comprehension to all Subjects achieving a reading grade score of 9.0 or more on the WRAT. For Subjects scoring lower than 9.0 on the WRAT reading test the paragraph reading sub-test of the Monroe-Sherman Group Diagnostic Reading Aptitude and Achievement Test was used to measure reading comprehension.

Forty-three Subjects (60% of the sub-group taking the adult test) were given the Nelson-Denny and 29 Subjects (40% of the same sub-group) were given the Monroe-Sherman. Recognizing that the word recognition aspect of reading as tested by the WRAT was difficult for the Subjects taking the Monroe-Sherman,consumed more time,they were offered the opportunity to continue working after expiration of the time limit in order to obtain a power measure of their reading comprehension. Half of the group (12 Subjects) did continue beyond the time limit. Both time and power scores are given in Table 32c.

Table 32. RESULTS OF ACHIEVEMENT TEST SCORES ADMINISTERED TO SUBJECTS AT FOLLOW-UP

a. WIDE RANGE ACHIEVEMENT TEST

TEST MEASURE WRAT	GROUP MEAN (n=72)*	S.D.
Reading		
Standard score	104.1	17.5
Grade score	10.4	3.3
Spelling		
Standard score	94.1	18.7
Grade score	8.4	3.5
Arithmetic		
Standard score	85.5	16.1
Grade score	6.7	3.0

*(79% of total study population)

b. NELSON-DENNY READING TEST

TEST MEASURE NELSON-DENNY	GROUP MEAN (n=43)*	S.D.
Vocabulary		
Standard score	61.7	8.8
Grade score	14.0	1.8
Comprehension		
Standard score	53.4	9.5
Grade score	11.6	2.9
Vocabulary and Comprehension		
Standard score	58.8	9.5
Grade score	12.9	2.3
Reading Rate		
Standard score	249.5 words per min.	119.8
Grade score	11.1	3.5

*(60 % of adult test population)
Ss with WRAT reading grade above 9.0

c. MONROE-SHERMAN READING TEST

TEST MEASURE MONROE-SHERMAN	GROUP MEAN TIMED CONDITION (n=29)*	GROUP MEAN POWER CONDITION
Mean grade score	5.39	6.17

*(40% of adult test population)
Ss with WRAT reading grade below 9.0

The difference between verbal and performance scores on both the WISC and WAIS was hypothesized to be a significant factor in differentiating among Subjects in the analysis of childhood and follow-up test data. Five "discrepancy" groups were created for those Subjects who had taken both the WISC and WAIS. Both child and adult IQ means are reported for these discrepancy sub-groups in Table 33. The discrepancy sub-groups were defined as follows 1) Those Subjects whose verbal IQ score exceeded their performance score by at least 15 points, 2) those Subjects whose verbal IQ score exceeded their performance IQ score by 10 to 14 points, 3) those Subjects whose verbal IQ score approximately equalled their performance IQ score (+-9 points), 4) those Subjects whose performance IQ score exceeded their verbal IQ score by 10 to 14 points, and 5) those Subjects whose performance IQ score exceeded their verbal IQ score by at least 15 points. In the WISC results the largest discrepancy group was that in which verbal and performance measures were approximately equal (26 Ss or 38% of the total WISC and WAIS sub-sample). At follow-up testing the largest discrepancy group was that in which verbal IQ score exceeded performance IQ score by 15 points or more. (27 Ss or 39%)

Table 33. MEANS OF WISC AND WAIS SCORES BY DISCREPANCY GROUPS (n=69)*

WISC	V>P by 15 or more		V>P by 10-14		V=P (±9 pts.)		P>V by 10-14		P>V by 15 or more		TOTAL	
Number and % in discrepancy group	n	%	n	%	n	%	n	%	n	%	n	%
	20	29	7	10	26	38	5	7	11	16	69	100
Test Measure	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**		
Verbal	97	10	92	13	89	12	89	14	89	16		
Performance	72	13	80	13	87	11	100	15	115	10		
Full	84	12	85	14	87	13	94	16	101	14		
WAIS												
Number and % in discrepancy group	n	%	n	%	n	%	n	%	n	%	n	%
	27	39	8	12	23	33	7	10	4	6	69	100
Test Measure	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**		
Verbal	107	18	95	9	97	13	102	22	95	12		
Performance	83	16	83	9	97	14	114	21	120	6		
Full	96	18	89	10	97	14	107	22	106	10		

*(76% of total study population)
(96% of adult test population)

V=Verbal IQ score
P=Performance IQ score

Table 34a. MEAN WRAT SCORES ACCORDING TO WAIS VERBAL VS. PERFORMANCE DISCREPANCY GROUPS n=72*

WRAT TEST MEASURE	GROUP 1 V>P by at least 15 Mean	S.D.	No. of Ss	GROUP 2 V>P (10-14) Mean	S.D.	No. of Ss	GROUP 3 V=P (±9) Mean	S.D.	No. of Ss	GROUP 4 P>V (10-14) Mean	S.D.	No. of Ss	GROUP 5 P>V by at least 15 Mean	S.D.	No. of Ss	TOTAL ALL GROUPS Mean	S.D.	No. of Ss
Reading grade score	12.1	3.4	29	9.5	2.6	9	9.4	2.7	23	8.8	2.6	7	8.0	3.8	4	10.4	3.3	72
Spelling grade score	10.3	3.8	29	7.1	2.9	9	7.2	2.6	23	6.7	3.0	7	7.0	3.6	4	8.4	3.5	72
Arithmetic grade score	6.9	2.8	29	6.5	2.6	9	6.4	3.4	23	6.9	4.1	7	5.7	1.8	4	6.7	3.0	72

*(79% of total study population)

Table 34b. MEAN WRAT SCORES ACCORDING TO WAIS VERBAL VS. PERFORMANCE DISCREPANCY GROUPS FOR SUBJECTS WHOSE FULL-SCALE IQ 80 (n=64)**

WRAT TEST MEASURE	GROUP 1 V>P by at least 15 Mean	S.D.	No. of Ss	GROUP 2 V>P (10-14) Mean	S.D.	No. of Ss	GROUP 3 V=P (±9) Mean	S.D.	No. of Ss	GROUP 4 P>V (10-14) Mean	S.D.	No. of Ss	GROUP 5 P>V by at least 15 Mean	S.D.	No. of Ss	TOTAL ALL GROUPS Mean	S.D.	No. of Ss
Reading grade score	13.2	2.7	24	9.9	2.5	8	9.7	2.5	21	8.8	2.6	7	8.0	3.8	4	10.8	3.2	64
Spelling grade score	11.2	3.4	24	7.5	2.8	8	7.5	2.6	21	6.7	3.0	7	7.0	3.6	4	8.8	3.5	64
Arithmetic grade score	7.5	2.7	24	6.7	2.8	8	6.5	3.5	21	6.9	4.1	7	5.7	1.8	4	6.9	3.1	64

**(89% of adult test population)

It was proposed that variations in academic achievement scores might be significantly associated with discrepancies in verbal and performance IQ. Therefore, the mean scores on the Wide Range Achievement Test were analyzed according to verbal vs. performance categories described above. As shown in Table 34a, the reading, spelling and arithmetic grade score means were higher for those subjects whose WAIS verbal score was 15 points or more greater than their performance score. The same distribution of higher means of WRAT scores was shown for subjects whose full-scale IQ was greater than or equal to 80 (Table 34b).

In order to test the hypothesis that verbal vs. performance discrepancy on the WAIS predicted variation in levels on the Wide Range Achievement Test, an analysis of variance was performed using the reading, spelling and arithmetic grade score means of Subjects in each discrepancy category. Table 35 a.presents results for all Subjects receiving both WAIS and WRAT at follow-up testing. Table 35b.indicates results for Subjects receiving WAIS and WRAT whose full scale IQ was greater than or equal to 80.

Table 35a. ANALYSIS OF VARIANCE
MEAN F RATIOS AND PROBABILITIES OF
WRAT SCORES ACCORDING TO DISCREPANCY GROUPS:
ENTIRE GROUP RECEIVING WRAT AND WAIS TESTING (N=72)

WRAT Test Measure	F Ratio	F Probability	Degrees of Freedom
Reading Grade Score	4.20	< .005	4,67
Spelling Grade Score	4.12	< .01	4,67
Arithmetic Grade Score	0.2	NS	4,67

ANALYSIS OF VARIANCE
F RATIOS AND PROBABILITIES OF MEAN WRAT SCORES
ACCORDING TO DISCREPANCY GROUPS:
SUBJECTS WITH FULL SCALE IQ 80 (N=64)

Table 35b.

WRAT Test Measure	F Ratio	F Probability	Degrees of Freedom
Reading Grade Score	8.04	< .005	4,59
Spelling Grade Score	6.46	< .005	4,59
Arithmetic Grade Score	0.46	NS	4,59

MEAN WISC AND WAIS SCORES OF SUBJECTS ASSIGNED TO GROUPS ACCORDING TO CONSTANCY OR CHANGE IN DISCREPANCY GROUP AT FOLLOW-UP (N=49)*

Table 36.

WAIS Test Measure	Group 1 Mean IQ	Group 1 S.D.	Group 1 No.of Ss	Group 2 Mean IQ	Group 2 S.D.	Group 2 No.of Ss	Group 3 Mean IQ	Group 3 S.D.	Group 3 No.of Ss	Total Mean IQ	Total S.D.	Total No.of Ss
Verbal	103	18	24	95	13	15	104	16	10	101	16	49
Performance	80	15	24	94	11	15	86	14	10	86	14	49
Full	93	17	24	94	13	15	96	16	10	94	15	49

Groups define changes or constancy from WISC to WAIS testing in the differences of Verbal and Performance IQ scores.

Group 1 = Remained in discrepancy categories V>P by 10 - 14 points and 15 points or more.

Group 2 = Remained in discrepancy category V=P ($\pm$ 9 points)

Group 3 = Moved from discrepancy category V=P ($\pm$ 9 points) to V>P by 10 - 14 points or 15 points or more.

20 Ss or 29% of the total group reporting both WISC and WAIS scores fell into none of these groupings and were not included in the present analysis.

*(68% of adult test population)

WRAT GRADE SCORES OF SUBJECTS BY
3 CRITERIA SUB-GROUPS
DEFINING CONSTANCY OR CHANGE OF VERBAL - PERFORMANCE DISCREPANCY
(N=49)*

Table 37a.

WRAT Test Measure	Group 1 Mean	S.D.	No.of Ss	Group 2 Mean	S.D.	No.of Ss	Group 3 Mean	S.D.	No.of Ss	Total Mean	S.D.	No.of Ss
Reading Grade Score	11	3	24	9	3	15	12	4	10	11	3	49
Spelling Grade Score	9	4	24	7	3	15	10	4	10	9	4	49
Arithmetic Grade Score	6	2	24	5	2	15	7	3	10	6	2	49

*(68% of adult test population)

NELSON DENNY VOCABULARY GRADE SCORES
AND COMBINED NELSON DENNY - MONROE SHERMAN READING
COMPREHENSION GRADE SCORES ACCORDING TO 3
CRITERIA SUB-GROUPS

Table 37b .

	Group 1			Group 2			Group 3			Total		
Test Measure	Mean	S.D.	No.of Ss	Mean	S.D.	No.of Ss	Mean	S.D.	No.of Ss	Mean	S.D.	No.of Ss
Nelson Denny Vocabulary Grade Score	14	1	15	12	3	7	14	2	8	14	2	30*
Combined Nelson Denny and Monroe-Sherman Reading Comprehension Grade Score	9	3	24	8	3	15	10	5	10	9	4	49**

*(42% of adult test population)
** (68% of adult test population)

For the scores of the 72 Subjects in the first Analysis of Variance (Table 35a), the F ratios are significant for reading and spelling but not signficant for arithmetic. The Analysis of Variance for the WRAT scores of those whose IQ 80 (n=64) (Table 35b) indicates even higher F ratios and levels of significance for reading and spelling. The F ratio for arithmetic is higher for the Subjects with IQ's of 80 or above but still lacks significance.

Thus for the sub-group of the adult study population having received both WAIS and WRAT testing, a significant association is evident between academic grade score achievement in reading and spelling and the discrepancy of Verbal and Performance IQ scores. No such association is apparent for arithmetic achievement level.

During the follow-up interval, Subjects either remained or moved out of their original WISC Verbal - Performance discrepancy groups. Further analysis was based on the constancy or movement of Subjects according to Verbal vs. Performance IQ discrepancy. A sub-sample of 49 Subjects was developed by re-assigning Subjects to sub-groups according to three criteria. These were 1) those Subjects whose Verbal IQ scores exceeded their Performance IQ scores on both the WISC and WAIS tests by 10 - 14 points or 15 or more points, 2) those Subjects whose Verbal and Performance IQ scores remained approximately equal (+ - 9 points) on both the WISC and WAIS, or 3) those subjects whose Verbal and Performance scores were approximately equal on the WISC, but whose Verbal IQ score exceeded Performance IQ score by 10 - 14 points or 15 points or more on the WAIS. Twenty Subjects or 29% of the sub-group reporting both WISC and WAIS scores fit none of these three criteria. Table 36 reports the full scale IQ means for the three sub-groups (49 Subjects) meeting any of these three criteria.

Table 37a reports the WRAT grade score means for the 49 Subjects within these three sub-groups. Table 37b again groups Subjects according to the three criteria sub-groups in reporting grade score on the Nelson-Denny Vocabulary Test and the grade score means in reading comprehension for subjects who received either the Nelson-Denny or Monroe-Sherman test. Thirty Subjects of the 43 who reported Nelson-Denny scores were in the three criteria groups. Of those who reported either Nelson-Denny or Monroe-Sherman reading comprehension scores 49 Subjects were in the three criteria sub-groups.

A hypothesis was tested which sought to explain differences in intelligence and academic test scores according to the three criteria sub-groups established above. It was proposed that movement or constancy in the relationship of one's verbal and performance IQ on the Weschler scales might be significantly related to differences in adult academic and intelligence test results. A one-way analysis of Variance shown in Table 38 failed to sustain this hypothesis for WAIS, WRAT, Nelson-Denny and Monroe-Sherman Test results.

Future study employing multivariate analysis is proposed based on the same sub-group distinctions.

ANALYSIS OF VARIANCE: F RATIOS AND PROBABILITIES
FOR INTELLIGENCE AND ACADEMIC TEST SCORES
ACCORDING TO WISC vs. WAIS DISCREPANCY GROUPS
CONSTANCY OR CHANGE

Table 38.

Test Measures	F Ratio	P Value	Degrees of Freedom
WAIS			
Verbal IQ	1.57	.218	2,46
Performance IQ	4.61	*.015	2,46
Full IQ	0.14	.866	2,46
WRAT			
Reading Grade Score	1.53	.227	2,46
Spelling Grade Score	2.89	.065	2,46
Arithmetic Grade Score	3.85	.028	2,46
Nelson-Denny			
Vocabulary Grade Score	1.43	.257	2,27
Monroe-Sherman and/or Nelson Denny Comprehension Grade Score	1.26	.293	2,46

*Not significant at $P < .01$
Significant at $P < .05$

TAPED INTERVIEWS

A structured interview which was also tape recorded was conducted with 75 Subjects. Three participated only in the interview as they were unable to take part in the full psychological testing program. The following areas were covered in the interview:

1) School experiences - academic, extra-curricular, social-inter-personal, and feelings about special education.

2) Work experiences - length and kind of job (s), salary, work experiences prior to full-time employment, job satisfaction, goals and aspirations.

3) Social-Interpersonal - marital status, living arrangements, management of own affairs, relationships to parents, families, friends, interests and hobbies.

4) Learning problem - feelings and attitudes regarding learning difficulties, therapeutic or counselling experiences, skills never mastered.

Essentially the interview aimed to cover the Subject's experiences since leaving Cove which ranged from 7 to 25 years. Related to his feelings about special education were also attitudinal queries regarding feelings about coming to Cove, and the reasons for attendance at a special school.

Results of Interviews

In an effort to obtain a more objective evaluation of the taped interview, an observer trained in social psychology who was not acquainted with any of the Subjects listened to 75 tapes and read over accompanying transcripts. These tapes ranged from 45 minutes to 1 1/2 hours in length depending upon the amount and type of information given. The actual interview time took even longer as there was usually considerable discussion with the respondent before and following the structured interview.

The following discussion will attempt to coordinate both the objective findings and the subjective impressions of the interviewers. All of the interviews were conducted by the co-directors. One knew all the respondents as children, the other knew approximately 60% of the Subjects. This may have affected the results both positively and negatively. On the positive side, there was excellent rapport established and maintained throughout.

It is likely that defenses were lowered which may have enabled some interviewees to talk about problems which they might otherwise have concealed from a less familiar person. According to the objective assessment frank discussion of problems seemed to be more characteristic when the respondents were quite successful as adults. These Subjects were delighted to describe and discuss their accomplishments.

In general the subjects were extremely verbal and in many cases highly articulate, posing the following problems:

1) Keeping on track- many respondents tended to ramble, eagerly giving details only remotely pertaining to the question.

2) Responding with unnecessarily long verbal answers to questions requiring short and direct replies.

3) Terminating the interview- the respondents did not seem to tire whereas the interviewers did.

This propensity toward verbosity may reflect both the upper middle class make-up of the group as well as the type of ability patterns involved.

In reviewing the group as a whole, there appeared to be a definite split between those who are doing well and those who are doing less well. The range of functioning is very broad, and in some instances situation-related, as for example those who are still students. Accordingly the life situations can be considered as "autonomous", "independent", "semi-autonomous", "semi-independent", or "non-autonomous" or "independent" in terms of the following criteria:

(1) Academic preparation: Has completed high school and/or post-high school training or college program (s), vs. still a student.

(2) Work experiences: Is able or/unable to hold a job; length and consistency of employment vs. working in sheltered or protected setting.

(3) Living arrangements: (if non-student) Independent vs. living at home or in protected situation.

(4) Financial management: Is able or unable to handle own finances; the kind or extent of help required.

(5) Social-interpersonal: Has acquaintances and/or close friends vs. no friends; does or does not date, if single.

The results of the interviews are tabulated in Table 39 for those criteria which are not included elsewhere in the study.

Table 39. TABULATED RESULTS OF TAPED INTERVIEWS

	SUBJECTS	
Interviewed and tested:	72	97%
Interviewed and not tested:	3	3
	75	100%

a.	SEX	
Male	56	75%
Female	19	25
	75	100%

b.	MARITAL STATUS	
Single	63	84%
Married	10	13
Divorced	2	3
	75	100%

c.	LIFE SITUATIONS	
Autonomous or Independent	46	61%
Semi-autonomous or Semi-Independent	15	20
Non-autonomous or dependent	14	19
	75	100%

d.	LIVING ARRANGEMENTS	
Lives Independently	37	49%
Lives non-independently*	38	51
	75	100%

*Includes 5 in sheltered workshop and 2 subsidized employment.

e.	FINANCIAL MANAGEMENT	
Independent	41	55%
Some family guidance and/or preparation for independent management	3	4
Minimal help	7	9
Moderate help	3	4
Considerable help	3	4
Parental management*	11	15
Students	10	13
	75	100%

*Includes sheltered workshop and subsidized employment.

f. DRIVING

Drives a car	51	69%
Does not drive	24	31
	75	100%

g. AUTOMOBILE OWNERSHIP

Owns a car	38	51%
Does not own a car	37	49
	75	100%

h. SOCIAL-INTERPERSONAL

Friendships, general		
Has friends	63	84%
Does not have friends	12	16
	75	100%

i. SOCIAL-INTERPERSONAL II

Has close friends	47	63%
Does not have close friends	28	37
	75	100%

j. SOCIAL-INTERPERSONAL III

Dates	35	54%
Does not date	30	46%
	65	100%

k. RECOLLECTIONS OF FEELINGS OF SELF-CONSCIOUSNESS AT SCHOOL

	Yes		No		Total
In regular education program, no special help	6	8%	20	27%	26
In regular educational boarding school	0	0	5	7	5
In special education within regular school	25*	33	10	13	35
In special school	2	3	7	9	9
	33	44%	42	56%	75

*14 Subjects (19%) experienced additional teasing and ridicule.

l. INCIDENCE OF DRUGS AND/OR DELINQUENCY

No offenses	70	94%
Minor sexual offenses	3	4
Drugs	1	1
Repeated traffic offenses	1	1
	75	100%

m. INCIDENCE OF THERAPY OR COUNSELING AT VARIOUS DEVELOPMENTAL LEVELS

	n	%
Had therapy as child	29	39%
No therapy as child	46	61
	75	100%
Had therapy as adolescent	28	37%
No therapy as adolescent	47	63
	75	100%
Therapy as adults		
Had therapy - terminated	8	11%
Had marital counseling-terminated	1	1
Current and ongoing therapy	18	24
No therapy as adults	48	64
	75	100%

*The same Subjects may be represented in more than one category

n. VARIABILITY IN TIME SPAN OF THERAPEUTIC AND COUNSELLING EXPERIENCES

Never had therapy	20*	27%
Therapy:		
During childhood only	11	15
Childhood through adolescence	4	5
Childhood through adult (either ongoing or at intervals)	4	5
During childhood and as adult	4	5
During childhood and as adolescent	4	5
During childhood, adolescence and as adult	2	3
During adolescence only	9	12
Adolescence through adult	3	4
During adolescence and as adult	2	3
As adult only	11	15
Marital counseling	1	1
	75	100%

*Includes 3 who felt periodic contacts with medical doctor for neurological problems were therapeutic and that any other therapy was unnecessary.

According to the criteria used, 46 Subjects (61%) are regarded as "independent" or "autonomous", 15 Subjects (20%) qualify as being "semi-autonomous" or "semi-dependent", and 14 (19%) are seen as "semi-autonomous" or "semi-dependent". These findings should be viewed with caution as there are additional qualitative considerations which were not, and perhaps cannot, be measured.

The over-representation of males (56) (75%) and under-representation of females (19) (25%) reflects the make-up of the general population of learning disabled.

Many in this population have not as yet decided to attempt marriage; 65 (87%) are single; 10 (25%) are married and 2 (2.6%) are divorced.

Nearly all of the Subjects expressed positive feelings about their Cove School experience and shared a number of pleasant recollections. Their feelings about needing special schooling during the elementary years were rather diffuse and generally neutral. Most said they accepted their parents' decision regarding their school attendance as necessary in view of their need for smaller classes, specific instruction, etc., which had been given as explanations. The feelings about needing and receiving special help changed somewhat, however, at the junior high school and high school levels as suggested by the mixed feelings reported about these years in the interview. In the group that was interviewed, 31 (40%) considered themselves as having attended regular classes in high school and 44 (60%) admitted to some kind of special help, ranging from special education class or school to outside tutoring. Of the latter group, 20 (45%) expressed positive feelings toward special help, 20 felt negatively and 4 (10%) were ambivalent.

The data suggests much variability in "like vs. dislike" of particular school subjects. Further analysis would be needed to determine significant relationships between the nature of the learning disability and the success (or failure) in particular subject areas. Thus far, it appears that the group whose verbal scores exceeded performance scores tended to dislike (and/or do poorly in) mathematics and science. Mixed complaints were found in other areas such as writing, composition, physical education and foreign languages.

Forty-two (56%) of the Subjects said that they were active in various extra-curricular or elective areas during high school. The Subjects fairly consistently expressed satisfaction with non-curriculum subjects such as art, music, shop and drama. Even those with speech problems found theatre experiences to be successful and pleasant. Those Subjects who had attended college (43 Ss, 57%) and even those who had had specific problems in reading as children often commented that courses such as psychology, criminology, archaeology, and esthetics were among the most interesting. The data suggests that at least some of the success or failure in various courses was related to the teacher and teaching. Dislike of a particular subject was often coupled with comments such as the subject was "boring," or the teacher was a "poor teacher."

Of the 49 Subjects (65%) who were employed at the time of the interview, 39 (52%) reported satisfaction with the job, 7 (9%) had negative feelings and 3 (4%) were ambivalent. Much of the discussion around job satisfaction concerned the people with whom the subject was involved in the work situation. Frequently, the employment situation appeared to offer these Subjects social (friendship) kinds of contacts, and recreational activities related to work such as bowling teams were

utilized as opportunities for social participation. In view of the finding that 12 (16%) of the Subjects said they had no friends whatsoever, 28 (37%) said they do not have any close friends, and 30 (46%) of the single subjects said they do not date, employment situations that offer people-contact may be regarded as a significant factor in their lives.

The data about living arrangements is presented elsewhere. The feelings and attitudes expressed in the interviews were in the main, reality-oriented. The six Subjects living temporarily with parents because they are not yet able to afford living away from home are included with the 38 (51%) reported as living with parents.

Of the 75 interviewed, 52 (69%) know how to drive a car; 23 (31%) do not drive. Thirty-eight (51%) own their own car, which may have been a gift or purchased by the subject, and 37 (49%) do not own their own car.

Interests and activities such as the following were questioned: sports, hobbies, TV, reading, performances, travel, museums, games, dance, movies, singles bars and music. Within a "miscellaneous" category a number of the Subjects reported group activities, such as church, and community and political groups. Travel in a group was frequently mentioned, and in some instances, the respondents traveled both independently and with a group or the family. The range of interests and hobbies was broad and included coin collectors and railroad, antique car, civil war history, opera, and archaeology "buffs". The minimum number of activities and interests was 3. The data on such non-work-related experiences would require additional analysis before any conclusions can be drawn as to whether this group is truly "activity-oriented."

Since there are no control groups with which to make comparisons, statistically relevant statements regarding life-styles and reality adaptations are not possible. Important descriptive features would appear to be the following:

(1) the number who have remained or are still single: 65 (87%)
(2) the number who do not date if single: 30 (46%)
(3) the number who said they have no close friends: 28 (37%)

The data are rich in feelings and attitudes about learning problems, counselling and therapeutic experiences, and skills not yet mastered. The less successful Subjects are still concerned about their inability to be competent in basic skill areas such as reading, spelling, math and writing. The writing problem interferes with communication; the math is involved with money management. A few complain about "poor memories." Those who have successfully completed college expressed concerns about lack of self-confidence, ability to take pressures, coping, patience, and the like. A number of the Subjects who have had problems being "clumsy" or "awkward" would like to improve their dexterity, perception and physical abilities. A few of the college-graduates berated a lack of technical skill which prevented them from doing basic maintenance on their automobiles.

It is noteworthy that 70 Subjects (94%) reported no involvement with drugs or delinquent or criminal acts. The minor sexual offenses as well as the one instance of repeated traffic violations appeared to be related to impulsivity and poor judgment. Factors related to this low incidence of anti-social acts may include the high socio-economic level of this population, the relative social isolation reported by many Subjects, and the therapeutic supports provided particularly during adolescence.

Only 20 Subjects (27%) reported having had no counseling or therapy at any point during their development. Somewhat more than one-third reported having had therapy for varying lengths of time during childhood and/or adolescence. Close to one-third also reported having had some experience in therapy as adults, and 18 (24%) are still in treatment. The nature and intensity of the treatment was not explored.

There was much variability in the time point at which therapy was initiated among the 55 Subjects as well as the extensiveness of the therapeutic contact over the various developmental periods. The data suggest that particular stresses such as changes in the educational, social and physiological adjustments of the Subjects may have necessitated the therapeutic intervention.

In general, those who have been academically successful expressed goals and aspirations of self-improvement and additional knowledge, movement toward professional attainment, and so on. Those least successful academically still long for mastery of those basic skills in which they are still not truly competent.

If one subdivides the group on the basis of obvious physical handicaps, such as cerebral palsy, visual and hearing defects, and then further divides these subgroups according to intellectual levels, it appears that the ability to compensate may be related to intellectual abilities. Those who are able intellectually do attain college level functioning, and some go beyond to attain professional or managerial status. Whether their socio psychological competencies are also related to intellectual abilities would require further analysis of the data.

The group as a whole gave the pleasant impression of being highly personable, affable and attractive young people. They did not stand out in a crowd, as in a restaurant unless there was an obvious physical handicap. The majority presented themselves as compassionate, sensitive young people, reality-oriented, goal-directed and responsible.

PERSONALITY TESTING

Sixty-seven subjects were given the Minnesota Multiphasic Personality Inventory (MMPI)[1] in either booklet or taped version. The test was not appropriate for four subjects with physical handicaps such as vision and hearing; one subject declined. The test results for five Subjects were discarded as invalid.

The following general personality characteristics as indicated by the MMPI[2] may be significant for this population of 46 males and 16 females. Whether the same or similar results would be found with the very broad spectrum that Learining Disabilities now covers is an open question.

A. Over-Commitment

The Subjects appear to demonstrate their sociability and competency via the safe avenue of engaging in a great deal of activity, in both the social and achievement oriented areas of living. They feel responsible to form themselves into likeable and successful people; however, they find it difficult to undertake this task in a psychologically meaningful way. Many tasks tend to be undertaken at any given time as a defense against poor performances and inadequate resolutions of personal problems. The Subjects can protect themselves from failure as if the following rationalization were in operation: "If I had had the opportunity to apply myself fully to this one task, then I would have been able to show you what capabilities I really have!"

In effect, these Subjects may be characterized by a poverty of close inter-personal relationships. The Subjects prefer to be occupied and involved in doing many things simultaneously, which may suggest an absence of well-planned, goal-directed behavior.

B. Withdrawal

The Subjects appear to find social relationships trying. On the one hand, they want and need people, and on the other, the Subjects lack confidence that people can like and respect them. In effect, to become known is to become vulnerable. As protection, the Subjects may periodically retreat into themselves or solitary activities to get away from people and to recover from their interpersonal wounds. To be involved in social relationships is to submit to the dangerous possibility of attacks upon the personality; try as they may, they cannot render themselves immune to the possible attacks of others.

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[1] MMPI test results were machine-scored by National Computer Systems, Minneapolis, Minn.

[2] The gender identification upon which MMPI has been based is in terms of the "masculine" male and the "feminine" female. In view of the changes in life styles particularly in these Subjects' generation, one may question whether interpretations based on earlier generations (40's and 50's) are now entirely adequate and appropriate.

C. Alloplastic Maneuvers

The Subjects seem to find it difficult to tolerate tensions which must be released by impulsively doing "things." At times, "action" seems to serve the purpose of escaping from oneself; at other times, the action serves the purpose of discharge of tension. In the males, the elevated Mf (masculine-feminine) pattern should be interpreted with caution; it may suggest that some "action" might serve, for example, as validating one's masculinity. All of the Subjects as yet may not have resolved issues of emotional control, rebelliousness against authority figures, etc.

D. Mood Reactions

It can be expected that these Subjects shall have substantial tendency to move between despondency to an almost euphoric feeling level. They tend to react to others on a mood level (disappointed or elated by others; feel hurt keenly; to be happy because of others' reactions; to use others as an audience to applaud and encourage them). In effect, at times, these Subjects are best characterized as "people lovers"; they want or need supportive and/or dependent relationships. However, despondency and depression lurk just beneath the surface, even when the Subjects appear elated, apparently happy, or satisfied. Being with people may make them feel temporarily happy. However, the quality of the interpersonal relationships and inner feelings of emptiness and insecurity make the Subjects feel like their show "won't make Broadway."

E. Encapsulation

The Subjects appear to be very sensitive and easily hurt. Their daydreams may be of the suffering-hero type. The barbs and arrows of social living, compounded by their insecurities and feelings of inferiority, make them tense and anxious. At times, they feel the need to build a wall between themselves and others; the wall is shored up by various "blame-oriented" mechanisms and nursing of hurts. "Fate didn't do right by me" might be a characteristic model for these subjects, as well as: "I'm suffering, I'm in pain, I'm being hurt -- what have you done to make me feel good, happy and successful?"

It is interesting that in the original observational data of Strauss and Lehtinen (1947), and Strauss and others (1955) the term "heightened interpersonal relationships" was used to describe the lack of close interpersonal involvement in brain-injured children. The MMPI findings today, of these children now adults, suggest that although this may well be part of the character structure, a psychotherapeutic approach with a contemporary focus might be of value. The psychotherapy should take the form of discussion of actual experiences and the feelings these events engender, desensitization,

self-acceptance, and the way to live happily with whatever limitations the Subjects possess.

Further study of MMPI findings in conjunction with projective techniques could provide additional data on the personality development and function of individuals with learning disabilities. Detailed results of the MMPI analysis are available upon request.

SUMMARY

Ninety-one families returned completed questionnaires regarding current status and post-Cove experiences of 90* former students now aged 21 to 39 years who had received remedial education at Cove School between the ages of six and 13. Seventy-five Subjects were interviewed and 72 were given intelligence, achievement and personality tests. Interview and questionnaire results were analyzed for the demographic characteristics of the study population,educational history and level of school and work attainment. Seventy-three percent were male; all came from white middle to upper middle class socio-economic levels. The families were intact and stable throughout the former students childhood and adolescent years (7 divorces 9 deceased parents).

Nearly 60% of the subjects were employed full-time; 16% were still full-time college students or had just completed their education at the time of the study. Five percent were considered to be marginally employable and 9% were and continue to be in sheltered workshop or in life care. The remaining 10% included those in part-time work, a housewife, those changing jobs, etc. Fifty percent of the employed group had been in their present positions three or more years.

Regarding occupational categories, 33% were employed in clerical positions; 23% were in unskilled occupations. Thirteen percent were in professional occupations such as teaching, research, urban planning, commodities brokerage and accounting. The remaining 28% were in sales, managerial, service, military and craftsman categories.

Earnings or salaries for full-time work ranged from $5,000 per year to over $15,000 per year with the median income being $7,500 per year.

Fourteen (15%) are married and two have divorced (both females). There appeared to be a broad range of "independent" to "dependent" living status as judged from the interview results. About 55% seem to have attained full or substantial separation from their families and have been living as independent adults. Approximately 20% have achieved partial independence; 25% are still quite dependent on their families. It should be noted that about 50% of the total population is still young -- in the 21 to 25 year age range. It is difficult to determine at the present time how many of the former students will ultimately attain full independence.

* One former student who was planning to participate in the testing was killed in a traffic accident.

An extremely low incidence of delinquency and minor adult offenses was found for this population (6%).

About three-fourths of the interviewed group reported some therapeutic or counseling experience at some point during their lives.

Sixty percent of the study population returned from Cove to a graded school at the elementary or junior high school level. Fifty-eight percent went into regular programs with no special education help. Of the group returning to regular programs, 20% re-entered regular school at their expected age-grade level; 64% re-entered one year below age-grade expectancy.

Forty percent returned to special education classes either for children with learning or emotional problems (26%) or the educable mentally handicapped (13%).

Seventy percent graduated high school. Thirteen percent received certificates from their high school EMH programs. A small number (7%) dropped out of high school; 3 from the EMH programs and 4 from the regular high school programs.

Sixty-nine percent of those who graduated high school entered college (48% of the total study population). Thirty-eight percent have completed college and 19% of the high school graduates are still students. A total of 56% of the high school graduates have either completed college or are currently full-time students. In contrast to Rawson's findings (1968), as a group, despite their college attendance, the Subjects did not attain the educational and occupational levels of their parents. However, the number who attained professional, managerial, sales, and clerical occupational levels is higher than reported by Hardy (1968).

Intelligence Tests

Intellectually the group was very heterogeneous with an IQ range of 69 and under to 130 and above, on both WISC and WAIS tests. The WISC was not administered to all Subjects at the same time or at the same age as it was done as part of the diagnostic procedure prior to enrollment or at some point during the students' attendance at Cove. At follow-up testing increases in mean IQ scores were found on all three WAIS scales, indicating some improvement in intelligence test functioning relative to the population norms for the two tests. A higher percentage of the adult group taking the WAIS appeared in the upper two IQ ranges (120-129; 130 and above) for all three scales. At the same time fewer subjects scored in the two lower IQ ranges (70-79, 69 and under) on the adult test.

The Mean WISC IQ was in the Average range on the Verbal Scale, and in the Dull Normal range on Performance and Full Scales. The Mean WAIS IQ's were all in the Average range.

Achievement Tests

For the test group as a whole the Mean Grade Score achievements were in descending order; Reading 10.4, Spelling 8.4, Arithmetic 6.7. Clearly, reading was the area of greatest competence and arithmetic the poorest.

Nearly two-thirds of the test group had WRAT Reading Grade scores over 9.0. These Subjects were administered the Nelson-Denny Reading Test. On the Nelson-Denny, Vocabulary was the highest scoring area (14.0) with Paragraph Comprehension somewhat lower (11.6). Combined vocabulary and Comprehension mean grade score was 12.9.

Those subjects with WRAT Reading Grade scores below 9.0 were administered the Paragraph Understanding subtest of the Monroe-Sherman Group Diagnostic and Achievement Tests, Intermediate Form. The Mean Grade score was 5.4, or 6.2 with additional time allowed.

Discrepancy Groups

For purposes of the study five test patterns relating Verbal and Performance IQ's were defined as follows:

1. Verbal IQ exceeding Performance IQ by 15 or more points
2. Verbal IQ exceeding Performance IQ by 10 to 14 points
3. Verbal IQ approximately equal to Performance IQ plus or minus 9 points
4. Performance IQ exceeding Verbal IQ by 10 to 14 points
5. Performance IQ exceeding Verbal IQ by 15 or more points

The Mean differences in IQ among these five groups were not significant. However, the discrepancies between Verbal and Performance IQ's were significantly associated with WRAT reading and spelling grade scores. The Reading and Spelling grade score means were highest for those subjects whose WAIS Verbal IQ was 15 or more points greater than Performance IQ. The mean grade scores for Reading and Spelling for this discrepancy group were even higher for Subjects with IQ's of 80 or above.

In general, discrepancy patterns tended to remain consistent from child to adult. The great majority of Subjects with Verbal IQ's greater than Performance IQ's by 10 or more points remained in that group. On adult testing the shifts tended to be in the direction of Verbal exceeding Performance. No significant relationship was found between the constancy or change in IQ discrepancy groups and achievements.

Personality Test (MMPI)

Characteristic group patterns indicated by the MMPI were inability to form close interpersonal relationships, low self-esteem, difficulty in tolerating tensions, variability of mood and marked sensitivity to being hurt.

Positive findings, as evidenced by questionnaire and interview data, were the strong motivation toward academic achievement and the value given to academic success and productive work which were characteristic of the majority of the study group. Throughout their schooling they demonstrated persistence in dealing with frustrations and were consistently goal-oriented toward achievement in high school and/or college. Their work record was good. Insofar, they appear to have incorporated the value systems of their families. On the negative side, results suggest that the cost to the personality for valued academic success may be in the development of a particular characterological structure as seen on the MMPI. Therapy may have contributed to easing childhood and adolescent stresses, but the effects of the developmental struggle for maturity remain in the personality.

CONCLUSIONS

The consistency and, in fact, the slight increase in IQ on adult testing suggests that education, intellectual stimulation, and a supportive family environment may maintain and enhance intellectual growth and development in children with learning disabilities.

The often overt but more frequently hidden effects of learning problems on the personality are pervasive. The nature of the personality effects and response to therapy should be explored further.

The relationship between ability patterns and achievements which exists in this adult study population is a finding which should be further investigated to determine whether a comparable relationship can be identified in children. Since the present study is in part a restrospective one, a longitudinal study would be recommended.

Additional analysis of the data gathered thus far may yield information regarding the relationship between socio-psychological competencies and ability levels and patterns.

APPENDIX

ANALYSIS OF SPELLING ERRORS ON THE WRAT

It was proposed that an analysis of errors on the WRAT might yield some clues to an understanding of the processes underlying the acquisition of the basic academic skills. This effort was pursued only with the WRAT spelling. Such an analysis proved to be impractical with the arithmetic, and the categorization of reading errors was found to be unreliable without a recording of rather good fidelity from which a transcription of the Subjects' effort to pronounce the word could be made.

As the spelling list on the WRAT was not constructed specifically to test the mastery of certain elements in english orthography by this study population, and a spelling concept was not often repeated after it was introduced a method of analysis had to be devised.

The method used was to determine the Basal Spelling Score -- the gradescore before the first error occurred-- and Ceiling-- the grade score of the last spelling success. Subjects were assigned to one of three groups according to their basal spelling score as well as their total grade score. With the use of this method, three natural groupings of spelling achievement appeared. These groups showed the following mean spelling grade and range on the WRAT.

COMPARISON OF MEAN AND RANGE OF SPELLING SCORES ON THE WRAT FOR THREE SPELLING COMPETENCY GROUPS

Table A.

Group	No. Of Ss	Mean Grade	Grade Range	Limits of Grade Range
I	27	4.5	3.7	3.0 to 6.7
II	30	8.9	3.6	7.2 to 10.8
III	15	13.7	6.0	11.2 to 17.2

The largest number of Subjects were in Groups I and II. Group I had limited spelling skills and a mean spelling grade score of 4.5 with a grade score range of 3.7 grades. Group II had higher level skills, with a mean of 8.9 and a spelling grade score range of 3.6 grades. Group III had very good spelling skills (mean spelling grade score 13.7) and was well represented with an n of 15 Subjects.

The grade range between Basal and Ceiling for different groups was as shown in Table B.

COMPARISON OF BASAL,CEILING, AND BASAL TO CEILING GRADE RANGE ON THE WRAT FOR THREE SPELLING COMPETENCY GROUPS

Table B.

	Mean Basal Grade	Mean Ceiling Grade	Mean Basal-Ceiling Grade Range
Group I	3.9	5.8	1.9
Group II	6.2	12.3	6.1
Group III	10.3	15.6	5.3

Group I had the lowest mean grade range between Basal and Ceiling, (1.9) indicating that the first error and last success were fairly close together. This is consistent with the marked error clustering around two words and reflects the limited skill development of the group. It is of interest that the mean Ceiling grade for Group I (5.8) was close to the mean Basal grade for Group II (6.3) -- where one group phases off the other begins.

Group II had the highest mean grade range between Basal and Ceiling (6.1), indicating a large gap between first error and last success. As mentioned earlier, Group II was distinct from Group III in earlier level of first error, but this was not true of last success. Somewhat more than two-thirds of Group II fell within the last success range of Group III. The mean Ceiling Grade Score for this group was 12.3, above the mean Basal for Group III (10.3). These data would indicate that the greatest irregularity of skill development was present for individuals in Group II, due to their failure to master spelling concepts at lower levels, inconsistent with their mastery at higher levels.

Group III attained a very respectable level of spelling proficiency, but still showed a wide gap between Basal and Ceiling. This is due to the effect of the very high concentration of spelling scores at the upper level, along with lower level failures. Sixty-seven percent of the group (10 Subjects) had successes concentrated at grades 16.4 and 17.2 with five others scattered between grades 11.6 and 15.0. Group III was the only one to show this concentration of highest success.

ERROR DISTRIBUTION

In examing the pattern of first error, it was striking to note that little overlap was seen for the error range for each group. Evidently these three groups reflect the development of spelling skill and as mastery progresses, certain stages are reached (or not reached), which determines where the first error occurs. However, the failure to master a certain stage, may exist simutaneously with mastery of a higher level concept, as will be seen later, adding to inconsistencies in development.

Group I made first errors from Grades 3.0 through 5.5. This group showed "error cluster", as 63 percent of first errors occurred on two words. One of these words was correct, the first introduction of a double consonant, and the other heaven.

Group II made first errors from grades 4.0 through 7.6. This group also showed "error cluster", but to a lesser degree as 37 percent of first errors occurred on two words equipment and reverence. Interestingly, the only overlap on first error with Group I was on the two cluster words for Group I and the two following words. This overlap occurred for only six individuals. This would suggest that these four words represented new spelling concepts or "rules", difficult for Group I, but mastered by the majority of Group II, with still some tendency for these words to retain a "new stage" error valence.

TYPES OF SPELLING ERRORS

The types of spelling errors were derived directly from the spelling list as they occurred and were categorized as follows:

1. Distortion - missing letters, extra or jumbled letters to the extent that the phonemic value of the spelling is lost. (Example: choreat for correct)

2. Transposition - transposing position of letters in a syllable or in the word. At Level I, these were often accompanied by distortion and affected the phonemic value of new words; this was less apparent for Groups II and III. (Example: trian for train, beleive for believe)

3. Vowel Ommission - these were of several kinds, some of which seemed to reflect incomplete mastery of "rules" or spelling generalizations, such as the effect of final e on the preceding vowel. (Example: educat for educate), common vowel digraph, (Example: tran for train), and the need for a vowel in a syllable (Example: heavn for heaven).

4. Consonant omission - the most common type of consonant omission was in failing to double a consonant (Example: corect for correct). A consonant digraph error (Example: sout for shout) seemed comparable to the lack of mastery of common vowel digraphs. Other consonant omissions appeared to reflect inaccurate discrimination and/or learned incorrect pronounciation of a word (Example: equiment for equipment). Another type of error was the use of one consonant to represent the sound when two were required (Example: concious for conscious).

5. Syllable omission - this was of two types: a single vowel standing as a syllable (Example: materal for material), and a vowel-consonant syllable (Example: litature for literature). Both types seemed related to possible habitual faulty pronunciation of the word by the Subject.

6. Vowel addition - final e when not necessary (Example: arme for arm), confusion in use of vowel digraphs (Example: oppourtunity for opportunity).

7. Consonant addition - a common error was adding a consonant to double an existing one (Example: litterature for literature). Other additions occurred as for example: equiptment for equipment.

8. Substitutions - all but one substitution error involved vowels. In Group I the vowel substitutions occurred entirely in unstressed syllables as for example: curect for correct and mittereal for material. In Group II the vowel substitutions occurred mainly in the choice of endings for a word as: reverance for reverence. A similar error pattern was seen in Group III with an additional confusion in ending choice brought about by selecting a more common one in preference to the correct but less common one: priviledge for privilege.

Table C. TYPES OF SPELLING ERRORS ACCORDING TO SPELLING COMPETENCY GROUPS

Error Type	I No. of Errors	II No. of Errors	III No. of Errors
1. Distortion	8		
2. Transposition	3	3	2
3. Omission: Vowels			
Vowel	1		1
Final vowel	1	1	
Vowel in digraph	4	4	1
4. Omission: Consonants			
Consonant	1	2	1
Consonant in digraph	1		
One of double consonant	5	2	2
5. Omission: Syllable			
Vowel syllable	1		1
Vow-Cons. syllable		1	
6. Addition: vowels			
Vowel	1	2	1
Final vowel	1		
7. Addition: Consonants			
Consonant		8	
Unnecessary doubling	1	2	2
8. Substitution			
Vowel in unstressed syllable	5	4	
Vowel in ending		8	2
Vowel in syllable with r		2	
Consonant			1
Familiar for less familiar			4
	33	39	18

Group I showed a concentration on one type of error with 24 percent of errors occurring on Distortion. Vowel Substitution in unstressed syllables and failure to double a consonant each accounted for 15 percent of the errors. Distortion error is distinctive for this group and evidently reflects the major difficulty these individuals have with spelling. They have apparently not mastered the sequential phoneme-grapheme relationships required in transcribing a spoken word to written form, nor adequate systems for determing which vowel to select to represent the neutral vowel in unstressed syllables or when to use double consonants.

Group II showed a concentration of errors of two types: Addition of Consonants (23%) and Substitution of Vowels in endings (23%). There was a scattering of errors over several of the other categories, with the notable exception of Distortion. The areas of error concentration again might be interpreted as stages of new spelling concept mastery.

Group III showed a scattering of errors across much of the range of categories, with most occurring in Substitution in word endings (familiar for less familiar); 22 percent of errors were in this category. In view of the wide range of first error shown by this group, the scattering across the categories is understandable, and points out that as a whole, the group has not eliminated certain lower level errors, although their incidence is low. It is notable that Transpositions occurred in all three groups.

Grade Range between Basal and Ceiling

The grade range between Basal (last consecutive correct word) and Ceiling (last success) was the measure of how close together Basal and last success were. Hence it may serve as an index of how regular or irregular spelling skill development is. The following examples show this difference between Subjects whose spelling grades were the same but who differed in level of mastery as measured by last success.

Example I Subjects from Group I

	Spelling Grade	Basal Grade	Ceiling Grade	Basal to Ceiling Grade Span
Subject (a)	5.5	4.6	7.2	2.6
Subject (b)	5.5	3.7	8.7	5.0

Example 2. Subjects from Group III

	Spelling Grade	Basal Grade	Ceiling Grade	Basal Ceiling Grade Span
Subject (c)	11.6	11.6	11.6	0
Subject (d)	11.6	5.8	16.4	10.6

In Example 1., both Subjects have the same spelling grade but the first error and last success of Subject (a) are closer together, with relatively narrow grade span separating the two, indicating he is generally limited to one stage of spelling development. Subject (b), however, has a much higher success, suggesting that although he has mastered some higher stages of spelling, he has retained certain earlier faulty learnings (or has not mastered earlier concepts), and probably has better potentiality than his grade score suggests.

In Example 2., both Subjects again have the same spelling grade, but Subject (c) shows no grade range between Basal and last success, indicating he has mastered spelling concepts as presented up to a certain level, but not beyond, and is uniform in his skill development. Subject (d) shows both a much lower Basal and much higher Ceiling and the large grade range of 10.6 indicates he is very irregular in his skill development. On the one hand he demonstrates excellent success in more advanced spelling yet has been unable to unlearn or correct earlier incorrectly learned spellings.

Relationship to WAIS Discrepancy Scores

The relationship between spelling competency groups and WAIS discrepancy between Verbal and Performance scores was explored. Table D. shows the distribution of Subjects from spelling groups within the WAIS discrepancy groups.

SPELLING COMPETENCY GROUPS VS WAIS DISCREPANCY GROUPS

Table D. Spelling Group	V>P (at least 15)	V>P (10-14)	V=P (+ - 9)	P>V (10-14)	P>V (at least) 15
I	5	4	12	4	2
II	13	5	8	2	2
III	11	0	3	1	0
Total	29	9	23	7	4

It is interesting to note that Subjects with Verbal scores exceeding Performance scores by 15 points or more were likely to be found in the higher spelling competency groups, II and III. In contrast, although the number of Subjects is small, none of the Subjects with Performance scores exceeding Verbal scores by 15 points or more were found in Spelling group III. The distribution according to WAIS Verbal-Performance patterns is consistent with the results reported earlier in the study, and suggests that spelling competency is at least in part related to verbal ability.

Results of this very preliminary error analysis suggests that grouping spelling errors according to types of skills mastered may have some bearing on clinical teaching techniques for students with learning problems. Similarly, in analyzing WRAT spelling test results the range of errors from first error to last success may contribute additional understanding about the individual's spelling competency beyond that provided by grade score alone.

References

1. Ames, L. B. "A Low Intelligence Quotient Ofter not Recognized as the Chief Cause of Many Learning Disabilities", Journal of Learning Disabilities, Volume 1, No. 12, 1968, pp 47-49.

2. Balow, B. and Blomquist, M., "Young Adults Ten to Fifteen Years After Severe Reading Disability", Journal of Special Education, Volume 6, No. 4, 1972, pp 397-409.

3. Brown, James I., Nelson, M. J., Denny, E.C. The Nelson-Denny Reading Test, Houghton Mifflin Co., Boston, 1973.

4. Bryan, Janis and Bryan, James, Understanding Learning Disabilities Alfred Publishing Co., Inc., Port Washington, New York, 1975.

5. Clements, Sam. Minimal Brain Dysfunction in Children: Terminology and Identification. U.S. Department of Health, Education, and Welfare, NINDB Monograph No. 3, 1966.

6. Fernald, Grace. Remedial Techniques in Basic School Subjects. New York: McGraw-Hill, 1943.

7. Fitzsimmons, S. J. et al. "School Failures: Now and Tomorrow", Developmental Psychology, Volume 1, 1969. pp 134-146.

8. Hardy, M. "Clinical Follow-up Study of Disabled Readers". Unpublished doctoral dissertation, University of Toronto, 1968.

9. Hathaway, S. R. and McKinley, J. C., The Minnesota Multiphasic Personality Inventory, The Psychological Corp., New York, 1948.

10. Herjanic, B. and Penick, E. "Adult Outcome of Disabled Child Readers", Journal of Special Education, Volume 6, No. 4, 1972. pp 397-410.

11. Hinshelwood, James. Congenital Word-Blindness. London: H. K. Lewis, 1917.

12. Hinton, G. and Knights, R., "Children with Learning Problems, Academic History, Academic Prediction and Adjustment Three Years After Assessment", Exceptional Children, March, 1971, pp 513-519.

13. Hussey, J. and Cohen, A. "Hyperkinetic Behaviors and Learning Disabilities Follow Over Seven Years", Pediatrics, Volume 57, No. 1, 1976, pp 4-10.

References (Continued)

14. Hunter, E. and Lewis, H. "The Dyslexic Child - Two Years Later", Journal of Psychology, Volume 83, No. 1 pp 163-170.

15. Jastak, J. F., Bijou, S. W., Jastak, S. R. Wide Range Achievement Test, Guidance ssociates of Delaware, Inc., Wilmington, Delaware, 1965.

16. Lord, Elizabeth Evans. Children Handicapped by Cerebral Palsy. New York: Commonwealth Fund, 1937.

17. Menkes, M. Et al. "A Twenty-Five Year Follow-up Study on the Hyperkinetic Child with Minimal Brain Dysfunction", Pediatrics, Volume 39, No. 3, 1967. pp 393-399.

18. Monroe, Marion and Sherman, Edith. Group Diagnostic Reading Aptitude and Achievement Tests, Intermediate Form, Nevins Printing Co., 1966

19. Myklebust, and Boshes, B. Psychoneurological Learning Disorders in Children. Arch. Pediat., 1960, 77, 6, 247-256.

20. Orton, Samuel. Reading, Writing and Speech Problems in Children, New York; Norton, 1937.

21. Preston, R. and Yarrington, D., "Status of Fifty Retarded Readers Eight Years After Reading Clinic Diagnosis", Journal of Reading, Volume 11, 1967, pp 122-129.

22. Rawson, M. Developmental Language Disability: Adult Accomplishments of Dyslexic Boys, Baltimore, John Hopkins Press, 1968.

23. Robinson, J. and Smith H., "Reading Clinic Clients - Ten Years After", Elementary School Journal, October, 1962, pp 22-27.

24. Silver, A. and Hagin, R., "Specific Reading Disability: Follow-up Studies", American Journal of Orthopsychiatry, Volume 24, 1964, pp 95-101.

25. Strauss, A. A. and Kephart, N. C. Psychopathology and Education of the Brain-Injured Child. New York: Grune and Stratton, 1955, Vol. II.

26. Strauss, A. A. and Lehtinen, L. E. Psychopathology and Education of the Brain-Injured Child. New York: Grune and Stratton, 1947, Vol. I.

References (Continued)

27. Taylor, Edith M. Psychological Appraisal of Children with Cerebral Defects, Cambridge, Massachusetts: Harvard University Press, 1959

28. Wechsler, David, Wechsler Adult Intelligence Scale, The Psychological Corp., New York, 1955.

29. Wechsler, David, Wechsler Intelligence Scale for Children, The Psychological Corp., New York, 1949.

30. Wechsler, David, Wechsler Intelligence Scale for Children, Revised, The Psychological Corp., New York, 1974.

31. Weiss, G., et al. "Studies on the Hyperactive Child. VIII Five Year Follow-up", Archives of General Psychiatry, Volume 24, 1971, pp 409-414.